MSc in Economics and Business Administration

Department of Marketing

Master Thesis

Marketing Communication Management

Brand Management in the Energy Sector

-a means-end approach to identify and build sources to brand equity in a B2B green energy context in Norway

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Executive Summary

By Bjørnar Johansen, September 2009

In the recent decade, deregulations in energy markets across Europe has opened previously monopolistic environments and opened for free market competition. The Norwegian Government has initiated a restructure process to convert from oil, gas and electricity over to alternative energy sources. One of its targets is to increase bio-energy production with 14 TWh within 2020. It has opened an attractive window of opportunity for private investors and biomass heating plant suppliers.

An attractive biomass heating plant industry emerges within the water-borne heat market in Norway. It seems reasonable to classify the emerging industry as a B2B context. Thus, branding principles adopted from B2B theories should apply well to the given industry. It offers an opportunity for suppliers of heating plants to escape from pure price competition.

Consumers in the industry are affected by the perceived risk associated with biomass. They must accept higher risk compared with solutions that run with oil, gas or electricity. It could explain why common buying situations in the industry call for large and confusing buying centers where members are made up from various companies. Four roles often make all major decisions throughout the buying process; initiators, deciders, consultants and users.

The means-end theory is applied to the industry in order to identify sources to brand equity. By conducting research on respondents classified as decider or consultant, results indicate a range of implications for brand management. First, respondents appear to be influenced by more rational and more emotional factors. Second, results indicate deciders and consultants are influenced by different underlying needs, values or motivations according to their role. And last, while research identified expected sources to brand equity, it was not confirmed that green branding initiatives influence their crucial decisions.

Data collected provide knowledge about the competitive frame of reference and positioning guidelines. An analytical framework is constructed in order to discuss proper points-of-parity and points-of-difference associations in the industry. Results indicate four relevant position considerations in the industry. Given the B2B context, additional implications are discussed by balancing top-down and bottom-up brand management activities.

Contents

Chapter 1 - Introduction

Norway is historically associated for its pioneering adventures within the oil and gas energy sector. Much have changed since the early days when oil was the primary energy source of business in Norway. The Norwegian Government acknowledges the increased focus on environmental issues and aims at the establishment of a healthy market for alternative energy sources. Early observations indicate that the biomass heating plant industry grows with a rapid pace of over 20 percent each year. Much due to favorable subsidies and regulations set by the Government. The Norwegian Government has initiated a restructure process to convert from oil, gas and electricity over to alternative energy sources. One of its targets is to increase bio-energy production with 14 TWh within 2020. This initiative has opened an attractive window of opportunity for investors and biomass heating plant suppliers. This paper deals with B2B branding and how strategic brand management could help players in the biomass heating plant industry to reach its targets.

The notion of emotions and increased focus on branding in B2B markets has attracted both academics and practitioners from vast different product categories. Many managers are convinced that branding is a phenomenon confined only to consumer products and markets (Kotler & Pfoertsch 2006 p.1). High tech products or commodities follow a strict rational decision-making process that only account for rational factors as price, service, quality, etc (Aaker & Joachimsthaler 2000 p.22). Still, companies as Microsoft, IBM, FedEx, Boing and Caterpillar confirm that many of the world's leading brands are in fact B2B brands. Also, several studies confirm that emotions and personal factors seem to play an important role in organizational decision making (Sen et al 2008, Lynch & De Chernatony 2004, Maitlis & Ozcelik 2004, Mudambi 2002).

Through a case study approach, alternative energy in Norway is explored through the lens of brand management. This paper recognizes that no comprehensive B2B brand model exists (Kuhn et al 2008). An analytical framework is presented in order to discuss findings in the biomass heating plant industry.

1.2 Problem Identification

The structure of energy markets is undergoing profound changes in many countries around the world. In the recent decade, deregulations has opened previously monopolistic environments and opened for free market competition (Weidmann 2005). At the same time, end users have been given the opportunity to choose amongst a range of energy suppliers with relative low switching costs. For end users, energy looks and feels the same regardless of its supplier. Thus energy providers around Europe have attempted to position and differentiate themselves by becoming more customer-oriented. The promise of branding is that energy brands with attributes more pleasing to consumers will be able to charge a premium (Hartmann & Ibanez 2006). Germany has provided interesting business cases from the residential down-stream energy markets. Empirical evidences suggest branding can be an effective tool to differentiate customer offerings. This paper sets out to explore the energy value chain in order to better understand how branding applies to a selected industry in the Norwegian up-stream heat market.

1.3 Purpose of this Paper

It is the aim of this paper to analyze the emerging bio-energy market in Norway from the lens of brand management. It includes analyzes in order to present the market structure and how branding principles applies. Hence, a major purpose of this paper is to identify sources to brand equity in the biomass heating plant industry. A second purpose is to provide an updated view on the theoretical foundation for B2B brand management. It includes a critical application of Keller's CBBE model.

1.4 Problem Statement

"Determine whether B2B brands can make a significant impact in the Norwegian biomass heating plant industry and how Agder Biocom should position its brand in the given industry."

The problem identification has its root from the subject of study; Agder Biocom. Its managers have neglected the external environment the business operates in. They do not hold branding as an important solution to build its business even more profitable. Critics claim price and technology alone determines decisions in the industry. It is a challenge this

author finds interesting after gaining crucial insight to the energy sector from an internship with StatoilHydro during the summer of 2008. More detailed, this paper will deal with research questions listed underneath.

1.4.1 Research Questions

Part 1: How does branding principles apply to the biomass heating plant industry?

- How do the macro trends influence the demand for bio-energy?
- How is the frame of competition?
- How is the industry structured? What about risk?
- How do industrial decision makers make key decisions in this industry?
- How are brands relevant in the given industry?
- How could brands influence the decision making process?

Part 2: How should Agder Biocom position a brand within the given industry?

- What factors influence the choice of brand positioning in B2B markets?
- How could Agder Biocom establish proper category membership?
- What could be sources to brand equity?
- How can Agder Biocom utilize branding principles in order to differentiate itself in the biomass heating plant industry?

1.5 Methodology

As stated by Andersen: "…*a considerable part of the world, we as economics, sociologists and psychologists study, is social constructed"* (Andersen 2008 p.46). Because this paper deals with social constructs, it will not produce theories and concepts that live up to the ideals set by the scientific sciences. Still, it follows a set of guidelines set for social sciences in order to better understand Agder Biocom and their environment as subject of study.
The thesis takes on an exploratory research methodology. Exploratory research, according to Andersen *"serves the purpose of exploring circumstances or phenomenon that are less known or unknown"* (Andersen 2008 p.22). Exploratory research design makes sense in this particular case as the purpose is to gain preliminary insights into an emerging industry. Hair et al also note that exploratory research designs have important uses in understanding and

resolving business problems, especially around preliminary explanations of marketplace or customer behavior and decision processes (Hair et al 2006 p.173).

The thesis takes on a mix between deductive and inductive work processes. First part follows more deductive work methods. Widely applied models as DESTEP and Porter's five competitive forces are applied in order to present the market and discuss the relevance of branding. Second part is mainly made up by inductive work methods. Insights from empirical and secondary data are discussed against several theories and concepts in order to better understand the industry at hand. One important part is to discuss suitable recommendations for Agder Biocom. It moves the methodology over to more practical orientations. The paper thus meets formal guidelines set by the Marketing Communication Management program.

1.6 Limitations

A biomass heating plant could apply to different usages. It could also provide electricity or drying in certain industries. This paper is limited to the water-driven heat market as it represents the most attractive market to pursue at the moment.

The paper only deals with issues related to B2B, and not B2G. Municipalities and industrial companies constitute the majority of the consumers in the heat market. After gaining insight to the industry, both municipalities and private companies seem to follow similar buying processes. It is thus argued that B2B and B2G be treated in similar way in the given industry.

Biomass heating plants face indirect competition from other alternative sources. It is possible to produce similar end product from electricity, oil, gas or wind driven energy sources. This paper will not discuss position related to indirect competitors. It is argued that it is the bio-energy industry as a whole that needs to address competition from alternative sources. As such, addressing non-customer stakeholders such as media or politicians will not be dealt with extensively in this paper.

Research conducted is limited to qualitative design. It is a suited approach given the exploratory design of this paper. It is suggested that quantitative analysis should be conducted in order to validate findings. Limited resources and time do not allow further research.

Agder Biocom is a start-up company. It is assumed it has no established brand position or any brand associations at the time of the research. For that reason, no strategic brand analysis of Agder Biocom will be conducted.

Chapter 2 – Methodology and Theoretical Framework

Given the exploratory design of this paper, a single case study approach is selected in order to provide the structure that allows answering the research questions. Yin (2003) argues that case studies are preferred design when the investigator has little control over events and the focus is on contemporary phenomenon within real-life context. Thus, selecting Agder Biocom as the critical unit, the case study approach should provide interesting insights to the emerging bio-energy market in Norway. Agder Biocom was selected because of its unique gasification technology, its healthy financial investors and its staff's competence. Yin (2003) also argues that finding a critical case is more appropriate at generating valid results compared with random sampling.

A frequent criticism of case study methodology is that its dependence on a single case reduces its capability of providing a generalizing conclusion (Flyveberg 2006). The aim of this paper is however not to generate new theory, but rather gain exploratory insights to an emerging industry. Findings related to Agder Biocom should be valid for similar cases and thus be of interest to business managers and academics working with energy brands in B2B contexts.

Given the exploratory case study design, a set of guidelines are followed in order to structure the work of this paper. As Yin (2003) argues fieldwork, and data collection may be undertaken prior to definition of the research questions. A pilot study was conducted in order to gain insights to the selected case and industry at hand. Findings from the pilot study provided the framework and research questions for the main study in this paper.

2.2 Data Collection

According to Yin data collected for single case studies are not restricted to one source in order to examine a limited number of variables, but allows evidence from multiple sources (Yin 2003). The following section presents how the different data was collected, and analyzed in order to live up to the case study ideal of valid interpretations. Yin comments about the importance that analysis show it relies on all the relevant evidences with no loose ends (Yin 2003). Thus, it was selected multiple data collection methods in order to gain as much insight as possible to the emerging bio-energy market. The data collecting process follows guidelines set by King et al (1994) in order to improve the data quality.

Secondary Data

Scientific papers & books

This paper did not succeed in finding previous similar studies within the given industry. An extensive literature search on books and scientific papers from similar B2B settings was conducted. Only peer evaluated articles and leading published books are included in the paper. Four books form the basis in this paper. The first is written by Reynolds and Olson (2001) *"Understanding Consumer Decision-making: The Means-end Approach to Marketing and Advertising Strategy."* As the authors point out, means-end studies are often found in different peripheral journals. The authors should be considered as pioneers within the method and are somewhat positive towards it. Although the book deals with criticism against the means-end theory, the authors' positive view could harm the objectivity when considering the method. Similar critics could also be claimed towards Kotler & Pfoertsch (2006) "B2B brand management", Kotler & Keller (2006) "A framework for marketing management" and Keller (2008) "Strategic brand management". The books are made up by combining mainly theories and case studies. The books offer little empirical evidence and thus the conclusions in the book could be questioned. The books are chosen given their practical approach to brand management and insights to B2B related considerations. Theories applied in this paper stems from research in major American and European markets. It should be critically adapted to the biomass heating plant in Norway. The application of theories and models are discussed throughout the paper.

Reports and publications

Governmental institutions such as Enova, Regjeringen, Innovation Norway and NoBio have produced several reports covering bio-energy available for the public. The reports are considered to be of high quality and reliable sources in this paper.

Web pages, brochures, etc

Data was collected in order to better understand the competitive frame of reference. While the data offers insight to the competitive frame of reference, further research is suggested in order to validate findings.

Primary Data

Interviews with selected people in the industry were conducted. A line is drawn between informants and respondents. First part of the interview guide in appendix 2 was followed for each informant. However, each informant was told to speak freely in order to elicit any relevant information. Appendix 1 shows main findings from the expert interviews. The informants are considered to be experts in the industry. An expert is defined as a person who has knowledge about the biomass heating plant industry, in particular the 1-2 Mw segment.

6 respondents were used as the sampling unit in the means-end research. Appendix 2 shows the interview guide used for each informant and/or respondent.

2.2.1 Validity & Reliability

Secondary data are collected from leading institutions and journals. Although their initial purpose served another research agenda, they are considered to be of high quality and reliable sources in this paper. Still, data are considered from the angel of the research statement and could harm the reliability and validity.

Findings in this paper seem to fit with research carried out in similar B2B contexts. The consistent findings enhance the reliability and validity.

Given the limited resources primary data was only collected from companies in the Southern Norway and companies surrounding Oslo. Further, 3 consultants and 3 deciders within the industry were classified as respondents. Adding more respondents to the research could further enhance the validity and provide a stronger case. It is recommended that further resources are made available to conduct a quantitative research in order to validate findings.

2.3 Theoretical Framework

Chapter 3 - Analysis of the External Environment

Kotler & Keller (2006) form the basis for the theoretical approach in chapter 3. According to Kotler & Keller DESTEP analysis can be applied in order to understand macro trends and how they influence future demand for a given market. It is applied in order to discuss future demand for bio-energy in Norway and possible barriers. Porter's five competitive forces model is applied to discuss the heating plant industry's attractiveness. Findings from the two classical models are then related to Keller's brand value chain (Keller 2008 p.314). Findings

are related in order to discuss whether investments in brand should translate into shareholder value or not in the given industry.

The DESTEP model and Porter's five competitive forces model have been criticized for its static nature and the lack of portraying how a range of markets influence each other. It is argued that such weaknesses do not affect the application of the models, and is thus not of relevance in this paper. More recent publications have criticized the models and the focus on competition in a fixed market structure. It relates to what Chan and Mauborgne would address as a red ocean strategy (Chan & Mauborgne 2005). According to them, fixed market competition leads to fiercely competitive industries with zero-sum conditions. Given the growth of the market, the models are suggested to provide valid insights on how to generate shareholder value for Agder Biocom's owners. Blue ocean strategies make more sense when industries are decreasing and hardly attractive.

Chapter 4 - Analysis of the Industry Context Factors

Kotler & Pfoertsch (2006) guide the theoretical work in this paper. The purpose of the chapter is to discuss the structure of the market. Theories according to Kotler & Pfoertsch are applied when discussing the buying situation, the buying process, the buying center and the role of branding. Insights to the industry were gained through secondary and primary empirical data. Findings from the industry are discussed against the theoretical framework applied.

Chapter 5 – Qualitative Research Method

Limitations regarding time and money are reasons to choose qualitative methods over quantitative methods in this particular case. Also, qualitative methods provide an opportunity to gain preliminary insights into organizational decision making. According to Hair et al qualitative research methods have important uses in understanding and resolving business problems (Hair et al 2006 p.173). Keller (2008 p.354) also comments that qualitative research techniques can identify brand associations and sources of brand equity. It fits with the exploratory nature of the research objective, as most qualitative research designs follow an exploratory research approach (Hair et al 2006 p.174). The major advantages of using qualitative research methods over quantitative research methods are

the richness of data, the economical ease of use and an opportunity to get first hand experiences with customers (Hair et al 2006 p.174). The main disadvantages are small samples sizes and the personal interpretation of the data. Qualitative research was chosen over quantitative due to the nature of the industry. It should be classified as an immature industry where little is known about the market structure, decision making and the buying process.

Means-end chain theory

The means-end theory in marketing literature was introduced by Gutman (1982) and seeks to understand purchase behavior as a means of satisfying different levels of needs. The method is applied in this paper because it allows the researcher to gain preliminary insights into business buying behavior in order to craft sustainable positioning statements. Means-end chain analysis presents a research method to link perceived product /service attributes to benefits and customer values. Although the method is predominately used for brand or product positioning issues in B2C markets (Reynolds & Gutman 1984), laddering has also been applied to research in industrial markets (Reynolds & Olson 2001). Reynolds & Olson (2001) explain how means-end chain theory and laddering interviews have been used in order to enhance understanding of buying behavior in industrial markets. They argue such understanding is needed in order to achieve leverageable and sustainable competitive advantage in business markets (Reynolds & Olson 2001 p. 319).

Means-end theory is an umbrella concept. Reynolds & Olson (2001) have summarized the most important principles about the means-end theory and serves as presumptions in this paper:

- Consumers seek alternatives that either provide positive consequences (benefits) or avoid negative consequences (risks).
- Consequences can be functional (more immediate and rational) or psychological (more personal, emotional and long term).
- Between two alternatives the consumer will choose the alternative most likely to provide benefits or avoid risks related to his or her most important values. Consequences and not product or service attributes are the consumer's focal concern.

In-depth laddering interview

In-depth interview is chosen over focus group because in-depth methods are especially good for learning more about the buyer and the buying processes in B2B markets (Block & Block 2005 p.87). More specifically laddering interview was chosen. Laddering interview is an effective method to evaluate and draw implications about the means-end theory (Reynolds & Gutman 1984). The laddering interview is a tailored interviewing format using primarily a series of probes by asking questions as "why is that important to you?" It provides a guide for conducting interviews, and also for analyzing data. According to Wansink (2003) the laddering method has its most interesting application for identifying sources to brand equity and designing positioning strategies. Or as Wansink puts it: *"Laddering can tap into the set of meanings and associations that differentiate the product (brand) from the competition"* (p.116). The interview guide used in this paper can be seen in appendix 2. Results from the study are analyzed and discussed in chapter 5.

Limitations

Some researchers claim means-end chain theory and laddering have limitations with validity and reliability due to the subjective interpretation of data (Reynolds & Olson 2001). As such, the method calls for skilled interviewers (Reynolds & Gutman 1984). The lack of experience by the interviewer could in this case influence the validity and reliability of findings. Another limitation is that there is no formal agreement of what laddering is supposed to do (Grunert & Grunert 1995). While academics agree on the concept means-end chain theory, several interpretations and laddering methods exist. Critics argue people in organizations are driven only by rational organizational values, and not by emotional personal values. An overarching claim of the means-end theory is that people in organizations are driven by both.

Chapter 6 - Frame of Competitive Reference

Kotler & Keller (2006) and Keller (2008) are selected in order to guide the work of addressing the competition. Keller & Kotler (2006) is applied when discussing the value added features of biomass heating plants through product and service differentiation amongst main competitors. Keller's theories is applied in order to discuss how points-of-parity and points-of-difference association should be built and managed. Secondary data collected from web

pages, brochures and expert interviews are used in order to apply theories to the given industry. The selected theories will be critically discussed were applied.

Chapter 7 – Gaining a competitive advantage

An analytical framework was constructed in order to present and discuss findings in this paper. Some general considerations led to the development of the analytical framework. First, this paper did not succeed at finding pervious methods suited for its research purpose and the unit of analysis. Although several textbooks exist, no book is customized to fit the situation at hand. Second, recent peer evaluated publications have brought some interesting reflections not discussed in the books selected for this paper.

Keller & Webster (2004) have published an article that offers guidelines for branding in industrial markets. Their work set the ground rules for the analytical framework presented in figure 2.1. The framework pinpoints the importance of balancing a top-down and bottom-up brand strategy activities in business markets. The framework structures the discussion on how Agder Biocom could organize its business in order to gain an attractive positioning in the biomass heating plant industry. Each of its components is discussed below.

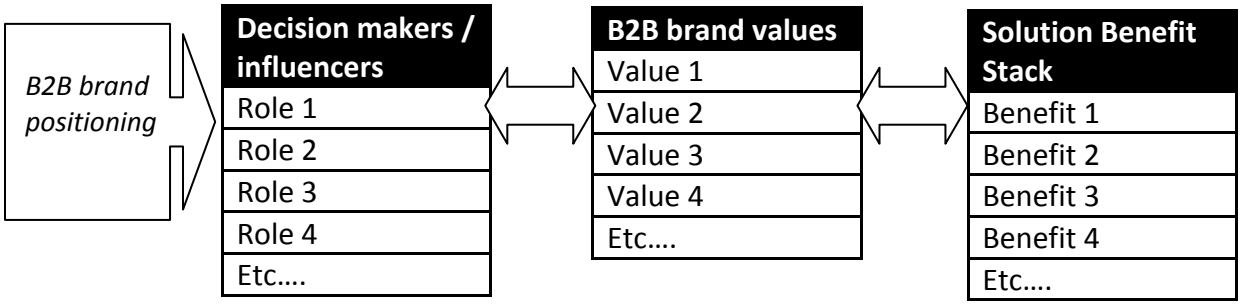


Figure 2.1: Brand strategy and competitive advantage

Comments:

The first part

According to Kotler & Pfoertsch (2006 p.69) a holistic brand strategy should be reflected in everything a company says and does. They further claim that the B2B branding strategy (p.168) should always be built on brand positioning, brand value proposition, brand promise, brand mission and brand architecture. This paper is preoccupied with brand positioning. Kevin L. Keller's CBBE model (2008 p.61) is applied in order to discuss proper positioning,

points-of-parity and points-of-difference associations. The model is selected because of its widely accepted application in B2C markets. The CBBE model has recently attracted attention in B2B markets. In their book "B2B Brand Management", Kotler & Pfoertsch has devoted two pages to its application in business markets. The model will be critically applied in the biomass heating plant industry in order to discuss sources to brand equity.
As demonstrated in figure 2.1, a B2B brand positioning should be relevant for all significant decision makers in a given context. It thus offers a top-down approach to branding.

The second part

The B2B brand values box is freely adopted from the work of Lynch & de Chernatony. Lynch & de Chernatony have been cited in several leading books concerning B2B branding, including "B2B Brand Management" by Kotler & Pfoertsch. In their paper "Winning hearts and minds: business-to-business branding and the role of the salesperson" Lynch & de Chernatony (2007 p.123) claim that effective communication of brand values are essential in order to realize the potential of B2B brands. They make the distinction between functional and emotional brand values and claim that B2B brands built solely around easily imitated functional values will always be vulnerable to attack from competitors. The B2B brand values box are applied to the given industry in order to discuss brand values relevant for significant decision makers. It is also applied in order to discuss how Agder Biocom could organize its business around a set of brand values in order to gain a distinct brand identity in the given market place. As shown in figure 2.1, different members of the decision making unit are persuaded by different values. Thus, a company should tailor its communication to each.

The third part

The solution benefit stack is adopted by the work of Narayandas. His work is widely adopted in industrial markets, and he is included as a co-writer in Anderson & Narus 2008 edition of "Business market management". Narayandas argues in his paper "Building loyalty in Business markets" that *"companies tend to apply consumer marketing solutions to business markets willy-nilly with poor results"* (Narayandas 2005 p. 131). One of his main arguments is that companies in business markets must use an approach that is based on benefits rather than features. He argues brands are being perceived similar in business markets and suggests benefits be classified into four categories; tangible/nontangible financial benefits and tangible/nontangible nonfinancial benefits. The solution benefit stack is the result of combining benefits that delivers superior value for the customers. The model is applied in

the given industry in order to better understand how Agder Biocom can attract customers. Figure 2.1 shows how different members of the decision making unit seek different benefits. It offers a bottom-up approach to branding and suggests each buying situation is unique.

The analytical framework is constructed by comparing different leading theories and models within business market management and brand management. Its application to the biomass heating industry will be critically discussed when presented in chapter 7.

2.4 The Subject of Study - Agder Biocom

The subject of study is an experienced player within biomass heating plants in Norway. It is located in the Southern part of Norway and has over 50 years of experience with biomass heating plants. The history stems from a previous company called Saxlund. The name Agder Biocom was established in 2002. It was later bought up by the Tratec Group in 2007 as part of a major investment in bio-energy. Agder Biocom makes an interesting case due its core members. Jan Bjarne Wormli and Frode Alvsnes are considered two pioneers within the biomass heating plant industry. They have patented a new technology that they claim has the capability to outcompete existing solutions in the industry. Backed by the capital strong Tratec Group, it has a strong business model and a great product. It has the proper foundation to create and sustain a strong B2B brand.

The patented technology

Agder Biocom has a patented gasification solution that burns with different types of biomass. Gasification is a method for extracting energy from different types of organic materials. It is a known technology in industries such as waste management and gasification of fossil fuels (coal). Although the technology has existed since the 70's, no commercialized solutions have existed for biomass heating plants. What gasification does, compared with traditional combustions, is that it generates *syngas*[1] out of biomass. It is a process that extracts energy more efficient resulting in less energy waste compared with traditional biomass combustions. Appendix 3 offers additional insights to the technolog.

[1] Syngas is created when biomass is burned at 400 degrees Celsius. Traditional solutions burn biomass at around 800 degrees Celsius.

Benefits for the customers

Agder Biocom's managers claim gasification is superior to existing combustion solutions on several dimensions. Initial tests have shown several possible benefits for the customers:

- It has lower investment costs.
- It generates less energy waste.
- The solution is compact thus it is easier to transport and more convenient to place.
- It needs less maintenance.
- It has longer operating hours before it needs replacement.
- It can be customized to fit each customer's needs.

The offering

Agder Biocom is looking to offer a complete biomass heating plant for its potential customers in the biomass heating plant industry. The gasification module is only one part of a larger solution. A complete plant includes the biomass combustion, the gasification module, a heating central and material handling. Appendix 3 shows a typical heating plant ranging 1 – 2 Mw.

2.4.1 Segmentation according to Mw

The biomass heating plant industry can be divided into four different segments according to the size of MegaWatt (Mw). Mw is an indicator of the size of a heating plant or how much power it generates. Plants that are capable of producing 1 Mw will typically support water-driven heating to midsized buildings such as schools, industry buildings and hospitals. It is identified four segments ranging from 0,5 Mw to 10 Mw in the given industry. For a complete segmentation list refer to appendix 4.

Initial tests done by Agder Biocom conclude that the gasification technology is too expensive for smaller plants and cannot compete with traditional solutions producing under 1 Mw. Traditional solution burn wood pallets or briquettes and dramatically lowers costs on the heating plant in segments below 1 Mw. The cost structure changes in favor of gasification for solutions above 1 Mw. Initial market analysis have identified a promising segment in the heating plant industry between 1 Mw and 2 Mw. Solutions above 2Mw normally burn with crushed wood that the gasification technology does not handle properly at the moment. Thus it is argued that Agder Biocom should compete within the 1-2 Mw segment.

2.4.2 Segmentation according to the Customers

Within the 1-2 Mw segment it is possible to target a selected group of customers. Customers from several businesses are looking to buy bio-energy solutions. It is possible to target according to type of usage, size of the customer, geographical location, etc. It will not be further elaborated on in this paper as it is an emerging industry where no attractive target is identified yet. The target market is set to all customers in Norway looking to buy a biomass heating plant ranging 1-2 Mw.

2.4.3 Agder Biocom's main Strengths and Challenges

The gasification technology has attracted attention amongst players in the industry, but key decision makers in industrial buying centers do not show same kind of enthusiasm. Initial sales efforts indicate that focus on price and technology no longer provide sufficient arguments. Competitors have differentiated their offerings to include product, - and service value-added features. While Agder Biocom has several internal strengths and a great product, it has not focused on the market and the lens of the customer. It is a well-established agreement that creating value for customers is an important source to competitive advantage in business markets (Anderson & Narus 2006). The paper thus set out to explore the external environment.

Chapter 3 - Analysis of the External Environment

Data is collected from various reports, white papers and interviews with experts in the marketplace. Previous studies on biomass markets in Norway conclude it is a lack of information on market conditions such as process, production volumes, costs and trade (Trømborg et al 2008). This insight led to a preliminary decision to base the research on qualitative data.

3.2 Market Attractiveness

Studies done by company Frost & Sullivan (2009;1) report that green energy industries have grown rapidly the recent year and attracted quadrupling investments the last four years in Europe. The growth is explained with fundamental factors as need for energy diversity and environmental concerns combined with a record high oil price. Several European alliances and Norwegian Governmental strategies seek to create competitive and healthy alternative energy markes in Norway (St. meld. Nr 34 2006-2007 p. 108-111). Appendix 7 compares energy for heat production according to the Nordic countries. It shows Norway has invested less in bio-energy compared with its neighbor countries. The Norwegian Government has stated that biomass energy production shall increase from current 16 Twh to 30 Twh within 2020. To reach its targets, several initiatives are taken in order to develop competitive supplier markets and end user markets.

3.2.1 DESTEP Analysis

The value chain for the heat market can be seen as presented below in figure 3.1 and set the point of departure for the analysis.

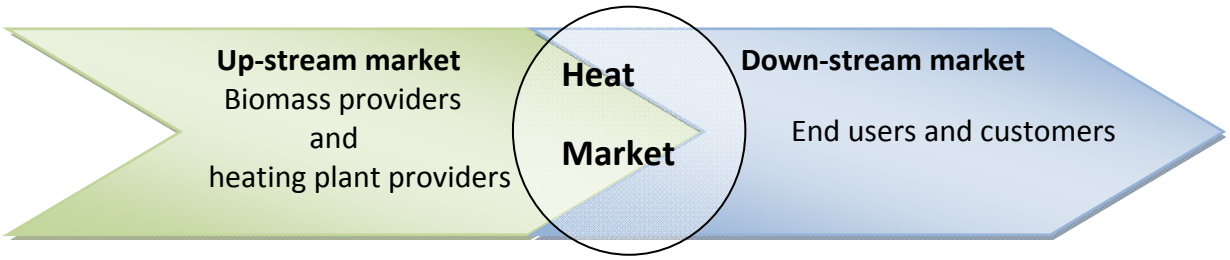


Figure 3.1: Heat market value chain *Source*: Freely adopted from Enova

Comments:

Kotler & Keller (2006) address the importance of understanding how macro environmental trends influence demand in a market. According to the authors, the macro environment can be divided into six major components often referred to as DESTEP analysis.
A detailed DESTEP analysis covering the heat market value chain is presented in appendix 5. One crucial finding across the value chain is the political will to use alternative energy. According to Rolf Hermansen (interview 2009), Rune Valla (interview 2009) and Christian Brennum (interview 2009) the political will is supported by the general public and opinion leaders in Norway. Bio-energy also provides economic incentives for private investors. Combined, it seems these favorable trends will enhance future demand for bio-energy as suggested in various public reports. Identified factors that enhance the future demand for bio-energy include the following:

- Municipalities in Norway need to convert to alternative energy sources within 2010, and bio-energy is the only realistic alternative (interview with Rolf Hermansen 2009). The Norwegian Government has stated it will increase bio-energy production with 14 Twh within 2020 (st meld nr. 34 2006-2007).
- Public owned agencies such as Enova and Innovation Norway support funding for investment costs to bio-energy related investments. The agencies also offer competence, - and advice services throughout the value chain.
- *Tekn 07* states that all new buildings in Norway need to address alternative energy sources.
- Reduced paper production has created a new business for farmers. Farmers used to send their timber waste to the paper industry, but are now converting to create bio-energy companies throughout the value chain (interview with Sigbjørn Bråtane 2009).

Major Barriers in the Market

Due to an immature market with lack of experience, the market is not expected to grow into a sustainable business before 2010 the earliest. Enova has identified some major barriers listed below presented in the whitepaper "Ti år med røde tall" (2007).

- End markets lack proper infrastructure for water-borne heating systems
- An immature market with lack of experience throughout the value chain
- Low profitability
- Low price on electricity
- High investment costs

Comments:

The DESTEP analysis show **favorable** trends for bio-energy in the heat market in Norway. It is a considerable large, growing and attractive market, something early observations confirm. Internal data presented by Tratec Group show an expected 20 percent yearly growth in the market. It should be noted that these factors may change over time and should be updated on regular basis in order to identify further opportunities and barriers in the market.

3.2.2 Competitive Analysis

According to Keller & Kotler (2006) Porter's five competitive forces is a widely apllied and well-tested model to determine an industry's long-term attractiveness. The model will be applied and follows guidelines as presented by Keller & Kotler (2006) in order to discuss whether or not the biomass heating plant industry is a favorable industry to compete in.

Bargaining Power of Suppliers – Very favorable

A complete heating plant consists of many components. According to Christian Brennum (interview 2009) it seems that maturing supplier markets outside Norway have created highly favorable conditions for the heating plant industry. Well tested and reliable suppliers from Denmark, Finland, Sweden and Austria offer a range of components for biomass heating plants in Norway (interview with Jan Bjarne Wormli 2009).

Bargaining Power of Buyers - Favorable

As shown in appendix 4, it is expected that customers from various businesses are likely to buy heating plants in the coming years. Customers such as energy providers, industrial buyers and municipalities are looking to buy biomass heating plants. The diversified structure of buyers should offer more favorable conditions for the heating plant industry. Heating plants are highly differentiated and switching costs are high amongst buyers. Such factors should lower the bargaining power of buyers thus making more favorable conditions for heating plant suppliers.

Derived demand

Eventually the demand for biomass heating plants is driven by the derived demand from end customers and the residential market (interview with Christian Brennum 2009). While it is difficult to argue the effect on environmental concerns, it seems that the residential markets support Governmental energy politics and thus support bio-energy (interview with Rune Valla 2009).

Current Competition in the Biomass Heating Plant Industry - Unfavorable

Appendix 6 offers an overview over existing competitors in segments ranging 0,5 - 10 Mw. The numbers show the biomass heating plant industry is made up with many small players were no competitor has a dominant position. It appears to be a highly competitive environment where several aggressive players are looking to secure a healthy position. Two identified factors should create a more competitive environment. Customers in the industry seem to perceive little product or service differentiation amongst biomass heating plants (interview with Christian Brennum 2009). Heating plants also have relative high investment costs as will be demonstrated in chapter 4.

Comments:

Current rivalry amongst competitors could be explained by the industry's immature life stage (report Enova 2007). It supports the claim to classify the industry as emerging. Conditions in the macro environment have created a window of opportunity for private investors in the industry. Given the growth, it is expected that rivalry amongst competitors will change and provide more favorable conditions on long term.

Threat of New Entrants – Unfavorable

In general, three factors attract new entrants to the biomass heating plant industry. First, surrounding industries facing maturing markets sees bio-energy as a new opportunity to extend their business. Second, public agencies such as Enova offer funding for bio-energy initiatives in the industry. The funding carries a lot of investment costs, thus lowering entry barriers for new entrants (interview with Sigbjørn Bråtane 2009). Third, the favorable sub-supplier conditions seem to make it easy for new entrants to import quality products and claim to be a reliable supplier of biomass heating plants. Observations show three nearby industries who are converting their solutions to include biomass heating plants. It interrupts with the competitive environment for more traditional biomass heating plant suppliers.

Plumbers face maturing markets in different industries, and are turning towards alternative energy as an increasingly attractive industry (Egeland 2009). Plumbers are already involved in bio-energy as they lay the piping needed for water-borne heating. Companies such as *Askim & Mysen Rør* and *OSO hotwater* offer solutions with biomass heating plants.

Fossil heating plant suppliers also offer biomass solutions (interview with Rolf Hermansen 2009). With experience from similar solutions within oil or gas, it seems convenient for fossil heating plant suppliers to convert over to biomass (interview with Sigbjørn Bråtane 2009). With decreasing trend for oil and gas, it is only reasonable to assume that such companies seek new market opportunities. Companies such as *RSM* and *MT Varme* are previously oil or gas providers who now also offer biomass alternatives.

Last, suppliers of farmer equipment are getting greener and look towards bio-energy. As was shown in the DESTEP analysis, farmers are becoming an important group that drives the demand for bio-energy. One example of such company offering biomass heating plants is *Ole Chr. Bye AS*.

Comments:

The industry has experienced unserious players, and customers are somewhat reluctant to try out new companies (interview with Lars Bugge 2009). Biomass heating plant technology is considered as complicated, and needs certain expertise in order to deliver as promised.

Although entry barriers seem low, the industrial culture works as a barrier. As a result, customers often demand references in order to make sure solutions are reliable (interview with Rolf Hermansen 2009).

Threat of Substitutes – very Favorable

Bio-energy competes with other energy-sources, in particular oil, natural gas and electricity (interview with Christian Brennum 2009). Prices on these substitutes directly relate to demand for biomass heating plants (interview with Rune Valla 2009, Lars Bugge 2009, Rolf Hermansen 2009. Expected higher prices and taxes on oil, natural gas and electricity create very favorable conditions for biomass energy (interview with Rolf Hermansen 2009).
Solar power and wind power has attracted the interest of investors and politicians in Norway. In current picture, solar and wind power are not defendable business projects. Governmental and private initiatives suggest that the future includes solar and wind power and could thus pose a significant threat in the future. In the coming years, it seems bio-energy is the only realistic green alternative (interview with Rolf Hermansen 2009, Rune Valla 2009).

Conclusion Market Attractiveness:

High rivalry amongst current competitors in the industry combined with attractive conditions for new entrants make this industry less attractive. It could explain an observation done by the Tratec Group that the market profitability is only around 1% in the industry. It could lead to fierce price competition. However, favorable conditions in the three other competitive forces show an attractive industry on long-term. Due to the early stage in the market life cycle, one should expect high investment costs in order to secure a profitable future position. Findings are summarized underneath in figure 3.2.

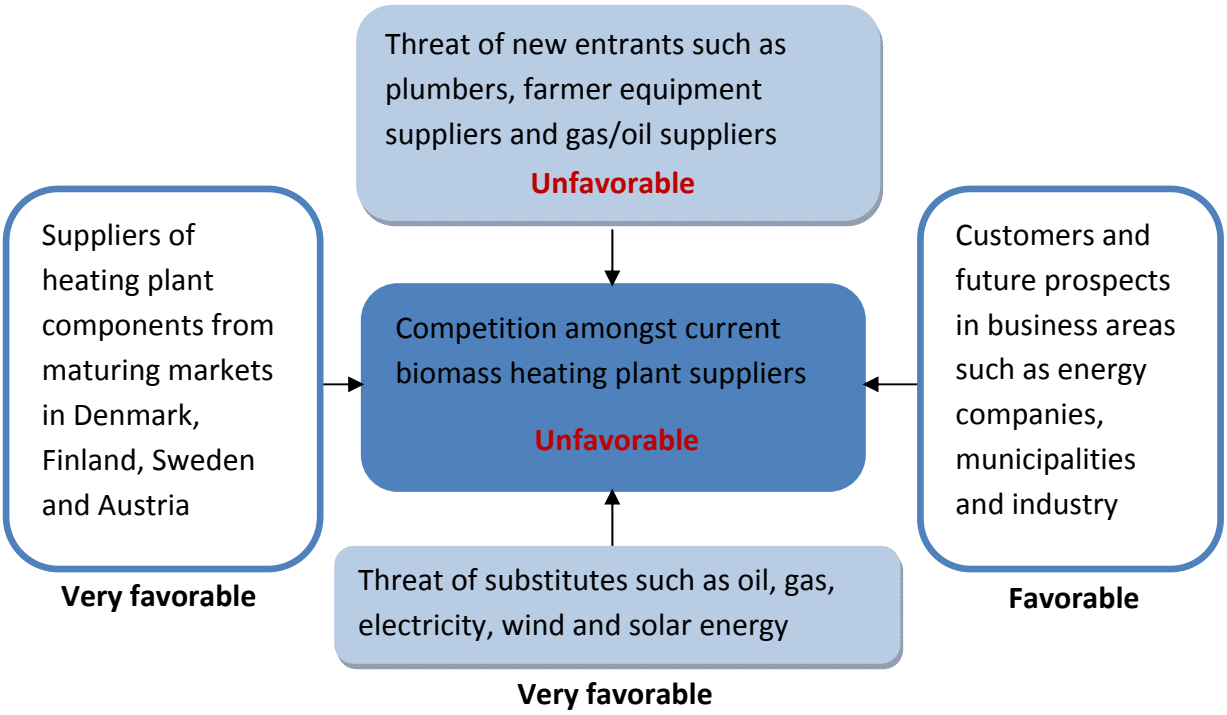


Figure 3.2: Competitive forces in the Biomass heating plant industry

3.3 Investment in Branding

According to Kotler & Pfoertsch (2006 p. 20) there are differences between B2C markets and B2B markets. Most branding theory is adopted from B2C settings and should be critically adapted to the current industry. Kim et al (1998) argue the importance of brand equity in B2B markets may vary according to product type and purchase situation. Some observations from the industry are discussed before evaluating if branding could create value in the given industry.

Market Dynamics

Critics in the industry claim that branding is not relevant due to the static nature of the market (interview with Lars Bugge 2009). In the given industry, customers only buy biomass heating central once every 20 years or so (interview with Lars Bugge 2009). In a study performed by Rauyruen & Miller, customer satisfaction was found to influence both attitudinal loyalty and behavioral loyalty in B2B markets (Rauyruen & Miller 2007 p.21). By conducting research on small to medium enterprises (SME) in Australia they identified that attitudinal loyalty provides positive word of mouth, recommending the service to others and encourages others to use the service (Rauyruen & Miller 2007 p.22). Their argument is that

the importance of brand management and of portraying a good image of the organization as a whole contributes to attitudinal loyalty in B2B markets (Rauyruen & Miller 2007 p.28). While it is difficult to valid these findings in the given industry, several informants acknowledged the importance of word-of-mouth. Thus, the attitudinal loyalty benefits support investments in branding in the given industry.

Critics also claim it is impossible to escape from the price pressure in the given industry. According to Keller (2008) B2B markets range on a continuum from high-tech to commodities depending on the product sold. Given the complexity of biomass heating centrals, it is argued that the given industry should be classified more towards high tech rather than a commodity market. In a study performed by Ruth Maria Stock, she found empirical evidence supporting B2B managers could expect somewhat reduced price sensitivity from highly satisfied customers (Stock 2005 p.78). By conducting study on various salespeople in a B2B context, results indicated that: *"….under the circumstance high product/service complexity it is particularly realistic to expect reduced price sensitivity from highly satisfied customers"* (Stock 2005 p.78). It is difficult to validate these findings to the given industry. But as commented by Lars Bugge (interview 2009) and Tormod Gevelt (interview 2009), it is a culture phenomenon in the industry of sticking with known reliable suppliers. While it was not expressed by the informants, it could indeed imply reduced price sensitivity. The finding supports the argument to claim that a strong B2B brand could escape from purely price competition in the given industry.

Another interrupting factor is the Governmental involvement within the industry (interview Christian Brennum 2009). Large energy companies have been given conventions to control markets in all major cities in Norway (interview with Rune Valla 2009). Different regulations might interrupt with branding, but will not be treated in this paper. It is set as a limitation.

3.4 Market Attractiveness and Multipliers in the Brand Value Chain

Keller explains brand value creation as a process consisting of various stages in his brand value chain (Keller 2008 p.318). According to the brand value chain, the extent to which value created in the minds of consumers translates into shareholder value depends on certain factors in the marketplace. A favorable marketplace exists when competitors fail to provide significant threat, when suppliers provide strong support and a considerable number of profitable customers are attached to the brand (Keller 2008 p.321).

The DESTEP analysis show favorable trends that are likely to increase the demand for biomass energy in the future. The competitive landscape identified a considerable large and attractive group of customers that make up an attractive industry on long-term. Although the industry is immature with many small players competing for market shares, it is reasonable to claim that the Norwegian biomass heating plant industry is an attractive industry to build a B2B brand. Efforts done to build strong, favorable and unique associations in the mind of the consumers should translate into active, loyal customers and eventually shareholder value. The uncertainty lies in constant changing conditions in the market place combined with own management of brands.

Chapter 4 – Market Dynamics and Size of the Buying Center

The purpose of this chapter is to present the structure of the biomass heating plant industry segment 1-2 Mw. Findings in this chapter will be applied at a later stage when discussing the implication of brand management. According to Keller & Kotler (2006 p.107) the main difference between B2C markets and B2B markets are the two types of customers. Thus, the buying situation and the decision making process differ and have implications for branding.

4.2 Perceived Risk

Customers looking for biomass heating plant solutions must accept higher risk compared with oil, gas and electricity (interview with Sigbjørn Bråtane 2009). Compared with its alternatives, converting to biomass solutions is similar to converting from driving a car to driving a combat wagon (interview with Lars Bugge 2009). Keller & Pfoertsch (2006) claim a strong brand reduces risk for its customers. According to Kapferer: *"Brands reduce perceived risk, and exist as soon as there is perceived risk* (Kapferer 2008 p.20)". Thus risk is addressed explicitly in this section.

Unserious Offerings

The industry has experienced unserious suppliers who have not delivered as promised (interview with Rune Valla 2009). It is somewhat easy to import biomass heating plants, claim to be competent and promise a reliable solution. It takes a lot more in order to actually deliver as working solution (interview with Rune Valla 2009). Unserious attempts have raised claims against companies who seek to establish its position in the industry. Lars Bugge (interview 2009) commented it is difficult to separate information about various suppliers and identify the ones who are professional. It seems key decision makers in the industry perceive risk because of the uncertainties of knowing whether or not one deals with a professional supplier and what information to trust.

High Investment Costs

A biomass heating plant that produces 1 - 2 Mw is a relative high investment in itself. The plant is a multi-million NKR investment. In addition, investment in water-borne heating often includes piping and proper infrastructure. The lack of water-borne infrastructure was also identified as a possible barrier in the DESTEP analysis in chapter 3. Figure 4.1 below

demonstrates how biomass has considerable higher investment costs compared with other energy carriers.

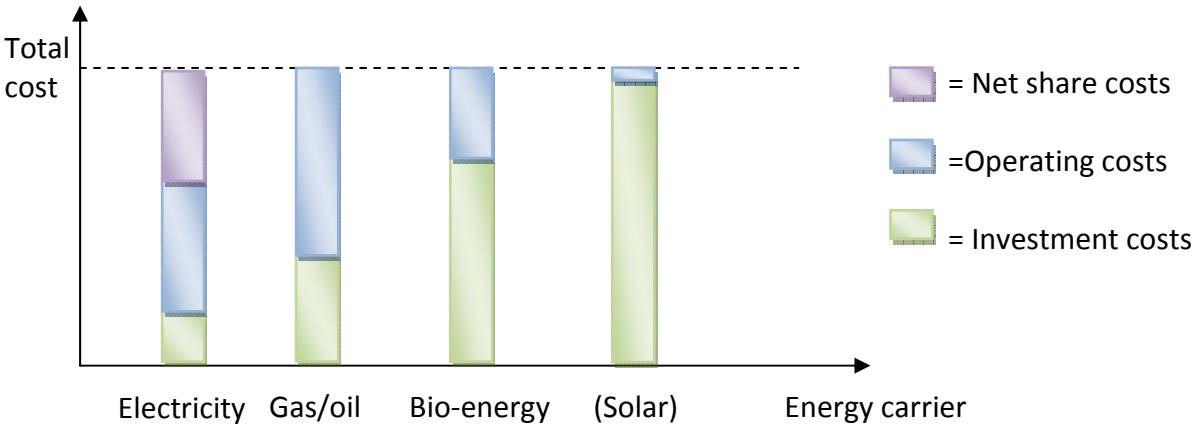


Figure 4.1: Investment structure *Source*: Freely adopted from Lars Bugge (2009)

Comments:

The model does not portray actual differences in monetary terms, but it demonstrates how bio-energy competes with other sources of energy. Choosing bio-energy is also choosing a higher investment cost, thus accepting a higher short term financial risk (interview Lars Bugge 2009). As the figure also shows, bio-energy offers lower operating costs and thus a more economic rational motive on long term. But consumers often confuse price and costs, and more often than not focuses on acquisition costs (interview with Lars Bugge 2009).

Complications with Supply and Operations

Although several reports conclude the support of biomass, it is a perceived risk with reliable supply. Not all areas in Norway are covered with reliable biomass supply. In addition, previous solutions have not been able to burn biomass properly. It has caused several delays in the production and irritation for users in the industry (interview with Siren Frigstad 2009). Because each buying situation demand a tailored heating plant it is difficult to identify solutions that offer both quality and reliability (interview with Sigbjørn Bråtane 2009).

It seems consumers in the industry are affected by the perceived risk associated with biomass. It could explain why the buying process often becomes complex with large and confusing buying centers (interview with Jan Bjarne Wormli 2009).

4.3 Size of the Buying Center and the Buying Process

Although each buy is unique, it seems two basic buying situations often occur in the given industry for the segment 1-2 Mw. The size of the buying center and the complication of the buying process seem to vary accordingly. One interesting observation is that only in rare situations do straight re-buy occur in the industry (interview with Jan Bjarne Wormli 2009). In most cases, one of the two situations as presented below occurs.

Situation 1 (modified rebuy)

In these situations the customer converts from solutions that already burn with oil or gas over to bio-energy. The water-borne infrastructure with piping and drifting is already in place, and the customer seeks a solution that converts biomass into heated water. In this situation the end customer specifies the buy of a complete biomass heating plant. It relates to a buying situation that academics term a modified rebuy according to Kotler & Pfoertsch (2006 p. 25). The customer aims to satisfy an existing need in a modified way. Figure 4.2 presents the main players often involved in the buying process and how they relate to the competition between suppliers. The buying center is made up with people from different departments with the end customer's company and external consultants. Their roles are presented below in the buying process.

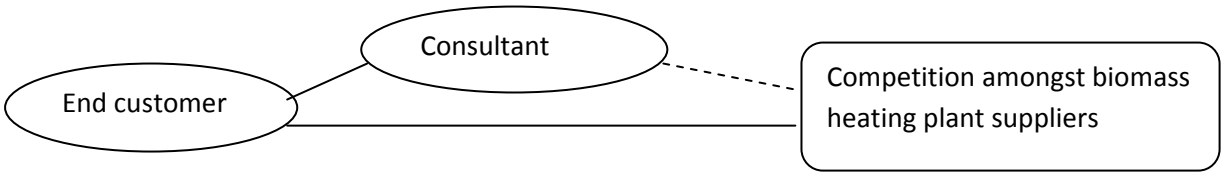


Figure 4.2: Buying situation 1 Source: Freely adopted from Christian Brennum 2009

Comments:

It seems often the end customer have little experience with biomass heating plants. This claim was confirmed by all informants. Because customers lack experience they hire a consultant to help them acquire a biomass heating plant. As commented by Siren Frigstad (interview 2009), it may take 20 years or so between every time a customer acquire a new biomass heating plant. It is nearly impossible to keep an updated track on suppliers and technological changes.

Situation 2 (new task)

In these situations the end customer wants a complete heating solution. The end customer needs someone to install and drift a biomass heating plant in order to generate heated buildings (interview with Christian Brennum 2009). Academics term such situations as new task according to Kotler & Pfoertsch (2006 p.25). The customer is confronted with a new requirement for a service or a product. It complicates the work of identifying participants in the buying center. Figure 4.3 below presents different players who are involved in the buying process and how they relate to suppliers of heating plants.

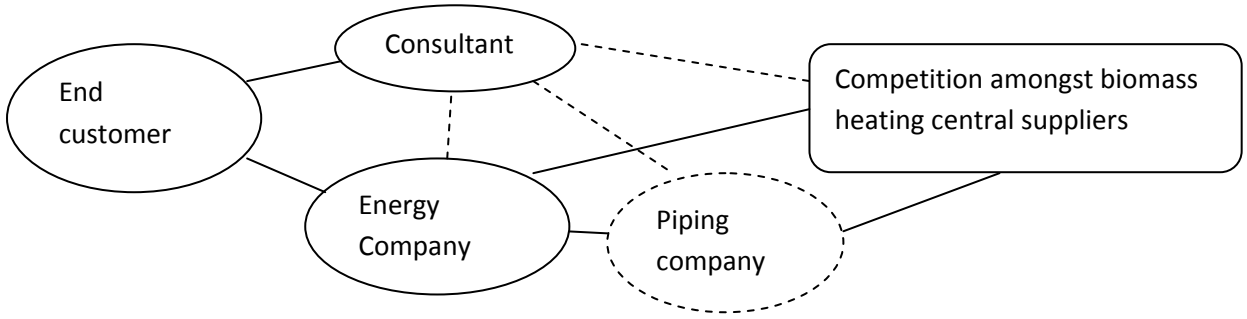


Figure 4.3: Buying situation 2 Source: Freely adopted from Christian Brennum 2009

Comments:

A piping company is needed in order to perform the piping work under the ground and in the buildings in new task situations. Further, an energy company is often needed in order to run the productions and operations of the biomass heating plant. Most often a consultant is hired in order to analyze the specific need and detail a product specification. The actual buyer of the heating plant could be the end customer, the energy company or the piping company according to their role in the buying process (interview with Christian Brennum 2009). In such situations it can be more difficult to identify the persons who make up the buying center and how they influence the decision making process.

4.3.1 Roles in the Buying Center

Interviews conducted identified four roles considered to be significant decision makers in the industry. The four roles identified were mentioned by several informants. While it is difficult to argue why these roles are most important, it will be elaborated on underneath.

Initiators

Initiators often consist of either a person or a group of people who takes the initiative to buy a biomass heating plant. As Siren Frigstad (interview 2009) commented such initiatives are driven by environmental issues or political decisions set by the Governments. This claim is consistent with findings in chapter 3 were the DESTEP analysis showed how Norwegian municipalities need to address bio-energy related investments. A similar claim was argued by Rolf Hermansen (interview 2009). He explained how initiators are also driven by economic motives. Converting to biomass solutions provide better economy in the long run. It is difficult to present a profile on initiators. However, it seems initiators often hold higher management-, or higher political positions.

Deciders (project leaders)

Deciders may not hold the formal responsibility, but will often be the project leader in a work group (interview with Siren Frigstad 2009, Tormod Gevelt 2009). Given this role, he or she guides the process from start to end. Thus the decider seems to play a crucial role in the buying process. Most decisions go via the decider. In the end, it is her or she that makes the final decision on which solution to settle on (interview with Siren Frigstad 2009, Tormod Gevelt 2009). Deciders seem to have higher education within engineering or economy. They often hold higher management positions within technical departments.

Consultants (influencers)

All informants in this study pointed out the consultant as the main influencer in the buying process. The consultant is hired on the background of his or her expertise with biomass heating plants. While the scope of his or her work varies, the consultant seems to be involved in earlier stages and have a major impact on later decisions in the buying process. Thus, it could be argued that they play an equally crucial role as the deciders in the given industry. Consultants identified in this paper seem to have master degrees within engineering and hold consultancy positions in established consultancy firms.

Users

As presented above, biomass heating plants need additional work on drifting. It could explain why users seem to have a significant role in the buying process. For users, it seems

that a heating plant should be easy to operate, offer reliable drift and easy solutions for disposal and maintenance. Such claims were also supported by Tormod Gevelt (interview 2009) and Siren Frigstad (2009). Depending on the situation, users seem to be janitors, technical personnel or the like that will be responsible for the actual drifting of the heating plant.

According to Kotler & Pforetsch (2006) the buying center could consist of more roles than the ones identified above. Such roles include approver, gatekeeper and buyer. Such roles were not mentioned by informants in this paper. This could further support the argument that the four suggested roles should be classified as most important decision makers in the given industry. Based on the discussion above, it is reasonable to further classify deciders (project leaders) and consultants as key decision makers in the given industry.

4.3.2 The Buying Process

It should be noted that the following process is an ideal presentation of the buying process. Each buying situation is different and the model should to be customized accordingly. Often, companies in the industry seem to go through similar stages but weight each stage different (interview with Christian Brennum 2009). The general buying process offers insights into some typical stages, roles and activities in the given industry. It serves the purpose of indentifying key decision makers and their roles in the buying process.

Stage 1: Problem Recognition and Decision on Biomass

It is often initiators that address the need for heated buildings. The need can be met in several ways, thus making the application of the competitive forces model relevant. As commented by all informants, initiators recognize the opportunity for cost reduction or environmental benefits that bio-energy offer. In addition, Governmental regulations presented in chapter 3 often play a significant role for converting existing solutions to run with bio-energy. As commented by both Siren Frigstad (interview 2009) and Tormod Gevelt (interview 2009) initiators often form a control group with the formal responsibility in the buying process. However, the same informants pointed out that in reality such a group does not have much power over decision. While the control group may have the authority to overrule decisions at any stage of the buying process, it is only in rare situations it does so.

Stage 2: General Need Description

When the need is recognized, a group of people make up a working group. The working group often includes users, deciders and influencers. *Deciders* are often technical engineers or high level managers working for the buying company (interview with Tormod Gevelt 2009). As commented above, influencers are most often external consultants. Also included are the users who will be responsible for drifting the solution. Depending on the situation, a number of other roles and responsibilities might be included in the working group. The working group discusses the general need description.

Stage 3: Product Specification

After initial talks, the control group defines the product specification. According to all informants, this process is heavily influenced by consultants. It is a difficult task where the customer often lacks experience with biomass heating plants or the motivation to define the product specification. Still, the decider set some general guiding rules for what the company needs. Often price, quality, reliability and references are made explicit as key criterion (interview Sigbjørn Bråtane 2009). The list of product specification can extend to over 20 product specifications (Rolf Hermansen 2009). According to Governmental regulations it may be obligatory to publish the offer on Doffin[2].

Stage 4: Search for and Evaluation for Potential Suppliers

At this stage, mainly deciders and consultants in the control group search for potential suppliers. As commented by several informants (interview with Siren Frigstad 2009, Tormod Gevelt 2009, Lars Bugge 2009) work carried out in this stage is heavily influenced by consultants. Consultants and in some cases the decider search for and evaluate potential suppliers in the industry (Lars Bugge 2009). Quality marks as Seleca[3] and various certifications may guide their search (Christoffer Oustad 2009). However, it seems key decision makers in the industry stick to known reliable solutions (interview with Lars Bugge 2009).

[2] Doffin is an online Norwegian national database for public procurement.
[3] Seleca is a certification for approved suppliers.

Stage 5: Proposal solicitation and Analysis

After receiving supplier proposals, evaluation on each proposal is carried out. In this round, consultants often play a major role of pre-qualifying supplier proposals (interview with Lars Bugge 2009, Rolf Hermansen 2009, Christoffer Oustad 2009). Based on different decision criteria, normally the number of proposals is reduced down to 5-3 suppliers. Unqualified suppliers are rejected in this stage.

Stage 6: Supplier Evaluation and Selection

Ultimately it is the decider who makes the decision (interview with Siren Frigstad 2009, Tormod Gevelt 2009). Once the consultants have pre-qualified suppliers, the decider needs to weigh different criteria in order to make the decision. Although the consultant indirectly influences this choice, he or she follow Governmental regulations and need to stay objective (interview with Lars Bugge 2009). The decider might be influenced by initiators and users, but need to make the final decision in the end (interview with Siren Frigstad 2009). While price is an important criterion, several informants commented the technical ability of the solution weights more (interview with Tormod Gevelt 2009, Siren Frigstad 2009).

Stage 7 and 8: Order-routine Specification and Performance Review

Several informants pointed out the importance of references in the industry (interview with Tormod Gevelt 2009, Siren Frigstad 2009, Christoffer Oustad 2009). Good working relationships with existing customers are crucial in order to demonstrate reliable solutions. Thus, buyer-supplier relationships are regarded highly important in the industry (interview with Lars Bugge 2009).

Summarized

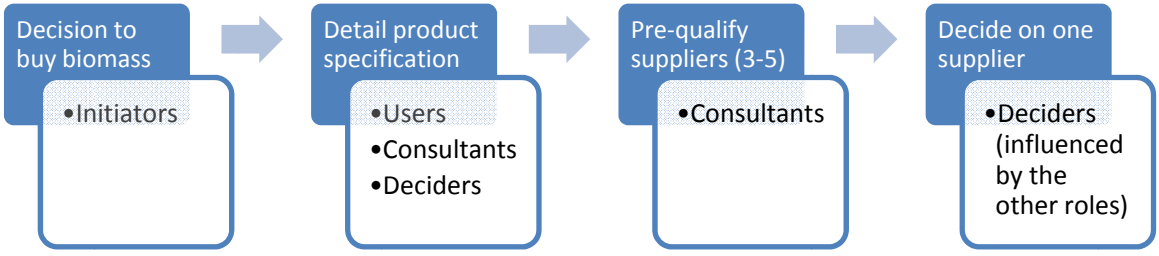


Figure 4.4: Crucial stages in the buying process and roles with decision power

Comments:

Figure 4.4 portrays which participants exercise most power according to different stages in the buying process. Important decisions are made along each stage, and suppliers might be rejected accordingly. It has several implications for brand management as will be discussed in later chapters.

While data collected showed additional stages in the buying process, the general phases seem to fit with the selected theory. According to Kotler & Pfoertsch (2006), it is commonly accepted that a B2B buying process include eight phases. Such consistent finding contributes to claim that the given industry structure fits with common accepted B2B theories.

4.4 Brand Relevance in the Biomass Heating Plant Industry

According to Kotler & Pfoertsch (2006) a brand may be present in every influential dimension affecting participants in the buying center. Although it is an interesting notion, this chapter will elaborate on findings in order to evaluate the relevance of branding in the given industry. Perceived risk and complex buying situations might be frustrating for managers to analyze, but it offers one benefit; it offers an opportunity to differentiate a brand.

4.4.1 Brands and the Complexity of the Buying Situation

According to Kotler & Pfoertsch (2006 p.50) the brand relevance is high in the beginning of the purchase process and decreases as it passes through stages. This claim could be related to the buying situations identified above. Because the industry mainly operates with modified rebuy or new task situations, it is reasonable to assume decision makers follow several step of the buying process. It should according to Kotler & Pfoertsch indicate that brands are relevant in the given industry. In contrast, Ulaga & Uggert (2006) present a study that indicates brands are more relevant in later stages of the buying process. Their study found that while cost considerations were most important for getting on the shortlist, relationship benefits dominate in order to decide which supplier to name first among a set of available suppliers (Ulaga & Uggert 2006 p.131). One explanation for the opposite claims could be the research design of the study. Ulaga & Uggert conducted their study within a particular B2B context for routinely purchased products. The study does not address branding as a separate construct, but contrast cost consideration with service support and personal interaction. Both theories presented by Kotler & Pfoersth, and the empirical

evidence suggested by Ulaga & Uggert support one claim. It is likely that brands are relevant in all phases of the buying process in a B2B context. It seems the structure of the biomass heating plant industry should be classified as a B3B context. Thus it supports the claim that brands are relevant in the industry.

Appendix 8 offers additional insights to the structure of the industry and brand relevance. It shows the industry rates medium on brand relevance according to context factors as suggested by Kotler & Pfoertsch (2006). The model does not provide a final answer, but act as a guide to determine the relevance of branding in a given market. Together the factors provide information about whether or not investments in branding make sense or not. While the model offers insights to the relevance of branding, it fails to incorporate risk as a relevant context factor. It is thus likely that the brand relevance is higher due to the risk profile in the given industry.

4.4.2 Preliminary Conclusion

Based on the arguments presented above it is argued that brands appear to be relevant in the biomass heating plant industry. According to Kotler & Pfoertsch (2006 p.47) strong brands in B2B contexts offer similar benefits to the customers in B2C markets. However, one should not expect the benefits are weighted in similar terms. According to Kotler & Pfoertsch B2B brands have benefits related to reduced risk, information efficiency and image dimensions for people involved in the buying center. According to Reynolds and Norton (2001 p. 326) trusted brands may take the place of much complex decision making in business markets.

Several informants (interview with Lars Bugge 2009, Christian Brennum 2009) rejected the claim that brands provide image benefits for consumers in the biomass heating plant industry. However, decision makers in the industry appear to be met with an overload of information and find it hard to evaluate trusted sources (interview with Lars Bugge 2009). It is thus argued that a strong B2B brand could stand out as a trust mark for decision makers in the industry.

Empirical data analyzed in this part of the paper seem to be consistent with the theories presented by Kotler & Pfoertsch. It supports the claim to classify the biomass heating plant industry as a B2B context.

Chapter 5 – Means-end Research and Analysis

"Company managers cannot sit around in their offices and reflect on how customers view the world."

Johnson & Gustafsson (2000 p.51)

5.2 Research Purpose

The purpose of the research is to gain insights into key decision makers' underlying personal motives with respect to suppliers of biomass heating plants. The aim is to identify tangible and intangible attributes and how they are linked with deeper lying associations or meanings important to key decision makers. A second aim is to better understand the decision making process.

Preliminary Interviews

According to Reynolds & Gutman (1988) it takes training and practice from the interviewer in order to elicit valid answers. Although several theoretical guidelines exist on the laddering interview, the interviewer needs to develop his or her own style in the end (Reynolds & Gutman 1988). In order to overcome known barriers, five test-interviews were conducted during May 2009 using five students from CBS as test-respondents. The initial interviews helped the interviewer to tailor his approach and overcome some common start-up barriers. It also pointed out flaws with the initial interview guide and design.

Respondents

In total 16 targeted companies in Southern Norway and the Oslo area were contacted per phone. Companies were selected after initial talks with Agder Biocom, Enova and NoBio in order to identify key players in the 1 – 2 Mw segment. Six of the companies contacted did not pass initial screening questions: *"Has someone in your company recently been involved in a buying process of a biomass heating plant ranging 1 - 2 Mw?"* and *"Was your role either decider(project leader) or consultant?".* Further four companies did not have the time to meet within the suggested time period. In total six people from six different companies passed the initial stages. Out of them three were classified as *consultants* and three were classified as *deciders (project leaders)* who had recently been involved in a buying process.

Similar research studies suggest that adding additional respondents could elicit important data and provide more valid results (Wansink 2003). Respondents in this research showed similar answers indicating that the target market is made up by decision makers with similar profiles. It is difficult to argue for a generalization to the entire population from the data gathered from the sampling units. Although an increased number of respondents would strengthen the validity of the findings, it is argued that the similarity across the selected respondents provide sufficient data for this thesis.

The Interview Environment

Respondents were contacted per phone in advance and briefed about the issue at hand. Also, an e-mail was sent in order to inform about the thesis and its purpose. This was done in order to strengthen the validity of the data. All interviews were conducted during June 2009 face-to-face at the respondents own offices. People make decisions in particular context and laddering works best while respondents think of realistic occasions (Reynolds & Gutman 1988 p.16). By conducting the interview in their own work environment, respondents are more likely to provide answers related with a personally meaningful context. All interviews were conducted in Norwegian.

Laddering Method

The unit of analysis is suppliers of biomass heating plants. In this paper a supplier is defined as the technical, economic, service and social benefits that a particular supplier delivers to a customer. It is defined in a similar way Anderson & Narus (2006 p.136) define a brand in industrial markets. The interview guide in appendix 2 was followed for each respondent. On average each interview lasted 60 minutes in total. Throughout the interview the respondents were reminded about his or her role in the buying process and the definition of a supplier the way it is treated in this paper.

Similar studies use the same product, service or brand for each respondent (Wansink 2003, Mentzer et al 1997). Given the emerging market where no market leader is identified, and no experience is recorded with Agder Biocom, the respondents were asked to consider their choice of supplier. It was not asked which supplier this was, only to let them think of which one they chose in a recent purchase situation and why. As such, the brand in the evoked set

may vary across respondents. Comparing results with one brand or one supplier could further enhance the design in order to validate findings.

5.3 Analysis

The theoretical framework follows guidelines set by Reynolds & Gutman (1988), later modified by Reynolds et al (2001). It offers guidelines to analyze and interpret data collected from the conducted ladder interviews. Individual ladders from each respondent were constructed after each interview. Ladders from all respondents are set together in order to summarize findings for further discussion.

Summary Content Code

First part of the analysis gathers elements from individual ladders. Each individual laddering interview are organized and summarized in two separate tables, one for findings related to consultants and the other for deciders. This distinction offers the ability to summarize findings by subgroup for later comparison (Reynolds & Gutman 1988 p. 19). Attributes in this paper are defined as the technical, economic, service and social attributes of a supplier. The list of attributes represents the most important attributes that the respondents evaluate a preferred supplier on. Consequences are defined according to the presumption set in chapter 2. Values are defined as the deeper, underlying needs, wants or motives that consequences satisfy.

Attributes	Consequences	Values
(1) Service	(9) No hassel for our customer	(25) Accomplishment
(2) Ability to burn biomass properly	(10) Avoid break-downs	(26) Better serve our customers
(3) Competence	(11) Can handle variations	(27) Peace of mind
(4) Meets product specification	(12) The customer gets quality	
(5) Reasonable price	(13) Fits with the environment	
(6) Aesthetics	(14) No hassels	
(7) Satisfy regulations	(15) Know the supplier delivers as promised	
(8) References	(16) Avoid confusing information	
	(17) Reliable drift	
	(18) Sophisticated image	
	(19) Get a safe solution for my customer	
	(20) Positive user experience	
	(21)Our customer gets satisfied	
	(22) I look professional	
	(23) Secure growth for our business	
	(24) I can trust the supplier	

Table 5.1: Summary content codes for consultants

Comments:

Respondents were asked to think about their choice of supplier, and why they selected this supplier. The list of attributes is randomly organized as the relative weight on each attribute depends on the buying situation (interview with Christoffer Oustad 2009). The attributes identified can be further organized into distinct categories according to how supplier is defined in this paper. Some criteria cover several categories thus the boundaries should be threatened as blurry. One early observation is the similarity in answers from the respondents. All respondents classified as consultants mentioned similar attributes, thus enhancing the validity of classifying respondents as consultants.

Technical attributes

Ability to burn biomass was highlighted in all interviews as an important decision criterion. One thing is building a biomass heating central, another thing is making sure it burns efficiently with crushed wood (interview with Rolf Hermansen 2009). Crushed wood may consist of whole grains, chopped wood and wet leaves. It easily gets stuck in the feeding

mechanism or do not burn properly. It is important that the technical solution shows ability to burn biomass properly without break downs (interview with Christoffer Oustad 2009).
Meet product specification relates to the uniqueness of each situation. All interviewed consultants highlighted the ability to meet customer demands in a particular situation. It takes both skills and competence in order to customize the technical solution to fit with each situation (interview with Rolf Hermansen 2009).
Satisfy regulations were also mentioned by all respondents. The technical solution must meet Governmental regulations according to pollution limits or else it will not be given permission to build a biomass heating plant (interview with Rolf Hermansen 2009).
Aesthetics was only mentioned by Christoffer Oustad (interview 2009). Often the biomass heating central are drifted close to schools, hospitals or other public buildings. As such, it is important that the heating plant fits in current buildings and do not pose a threat to people in the environment. Although it was not mentioned as *aesthetics,* Rolf Hermansen (interview 2009) also mentioned the importance of a safe solution.

Service attributes

Service was regarded an important criteria by all consultants. All respondents commented on the importance of the supplier's ability to install as promised and the ability to maintain and repair solutions effectively.
Competence was also pointed out by all consultants. It seems that many suppliers can import heating plants that will deliver on technical attributes, but in reality it is a difficult task that needs experience and competent workers (interview with Rolf Hermansen 2009).

Economic attributes

Reasonable price was discussed extensively with all consultants. Reasonable price relates to a price range which is considered important for heating centrals. It should not be to low because price is associated with future problems. It is not uncommon that the cheapest offer is rejected (interview with Rolf Hermansen 2009). Previous suppliers with low offers have created a bad reputation in the industry (interview with Lars Bugge 2009). While price is somewhat elastic, prices higher than 10-15 percent are often rejected no matter how good the technical solution is (interview with Lars Bugge 2009).

Reference

Reference relates to the technical, economic, service and social attributes of the supplier. It was pointed out as a crucial criterion by all interviewed consultants. Reference reflects a supplier who can show existing solutions that work, and have good working relationships in the industry. It is a sum of the reputation in the industry and relates to how consultants trust the supplier.

Deciders

Respondents classified as deciders portrayed similar, but fewer attributes they regard as most important for making their decisions. It is summarized in table 5.2 below.

Attributes	**Consequences**	**Values**
(1) Ability to burn biomass properly	(6) Avoid stressed employees	(18) Peace of mind
(2) Meets product specification	(7) Fits with our routines	
(3) Reasonable pricing	(8) Know we get quality	
(4) References	(9) Know they can deliver as promised	
(5) Service	(10) Easy to resolve problems	
	(11) Avoid break downs	
	(13) Avoid additional problems	
	(14) Better use of own resources	
	(15) Better economy	
	(16) I don't need to worry	
	(17) I can trust the supplier	

Figure 5.2: Summary content codes for deciders

Comments:

Also deciders showed similarity in their answers, and will briefly be discussed. The most interesting finding is that similar attributes, only fewer make up the most important decision criteria compared with consultants.

Technical attributes

Ability to burn biomass properly and *meets product specification* was mentioned by all respondents classified as deciders. Because deciders often lack experience with the technical attributes, their evaluation is influenced by *users* and *consultants* (interview with Siren Frigstad 2009). Rune Valla (interview 2009) commented that ability to burn biomass is

important because it is more expensive to burn with back-up solutions such as oil or gas if the system breaks down. As a basic, all respondents mentioned that the heating plant must deliver on their defined product specification.

Service attributes

Service relates to the supplier's ability to install as promised and the ability to maintain and repair solutions effectively (interview with Tormod Gevelt 2009). Such features was also highlighted by Siren Frigstad (interview 2009), but not by Rune Valla (interview 2009).

Economic attributes

Reasonable pricing was also commented by all deciders. Rune Valla (interview 2009) commented they rather have solutions that will work the next 15 years or so compared with cheep solutions that won't deliver as promised. Tormod Gevelt (interview 2009) also commented they evaluate the technical ability before price. It was not mentioned any price range by deciders, but all respondents indicated that price is a crucial decision criterion. As commented by Tormod Gevelt (interview 2009), too low prices often indicate poor quality. A proposal too low priced could indeed be rejected because it signals future drifting problems (interview with Siren Frigstad 2009). If the solution however meets the technical demands, price often becomes the crucial differentiator (interview with Tormod Gevelt 2009).

Reference

Reference was regarded important by all deciders. As with consultants, reference reflects a supplier who can show to existing solutions that work, and have good working relationships in the industry.

5.3.1 Constructing the Hierarchical Value Map (HVM)

A hierarchical value map was constructed for each of the two subgroups consultants and deciders. As the analysis moves on to more aggregate results, the two subgroups are threatened as ideal types. The HVM's were constructed using a cutoff approach. The cutoff approach allows the researcher to evaluate several solutions and choose the one that appears most informative with a set of stable relations (Reynolds & Gutman 1988 p.20). The purpose is to portray how supplier attributes (A) are linked with consequences (C), benefits

(B) and values (V) in the minds of the two subgroups for later discussion. Underneath is the HCM constructed for consultants.

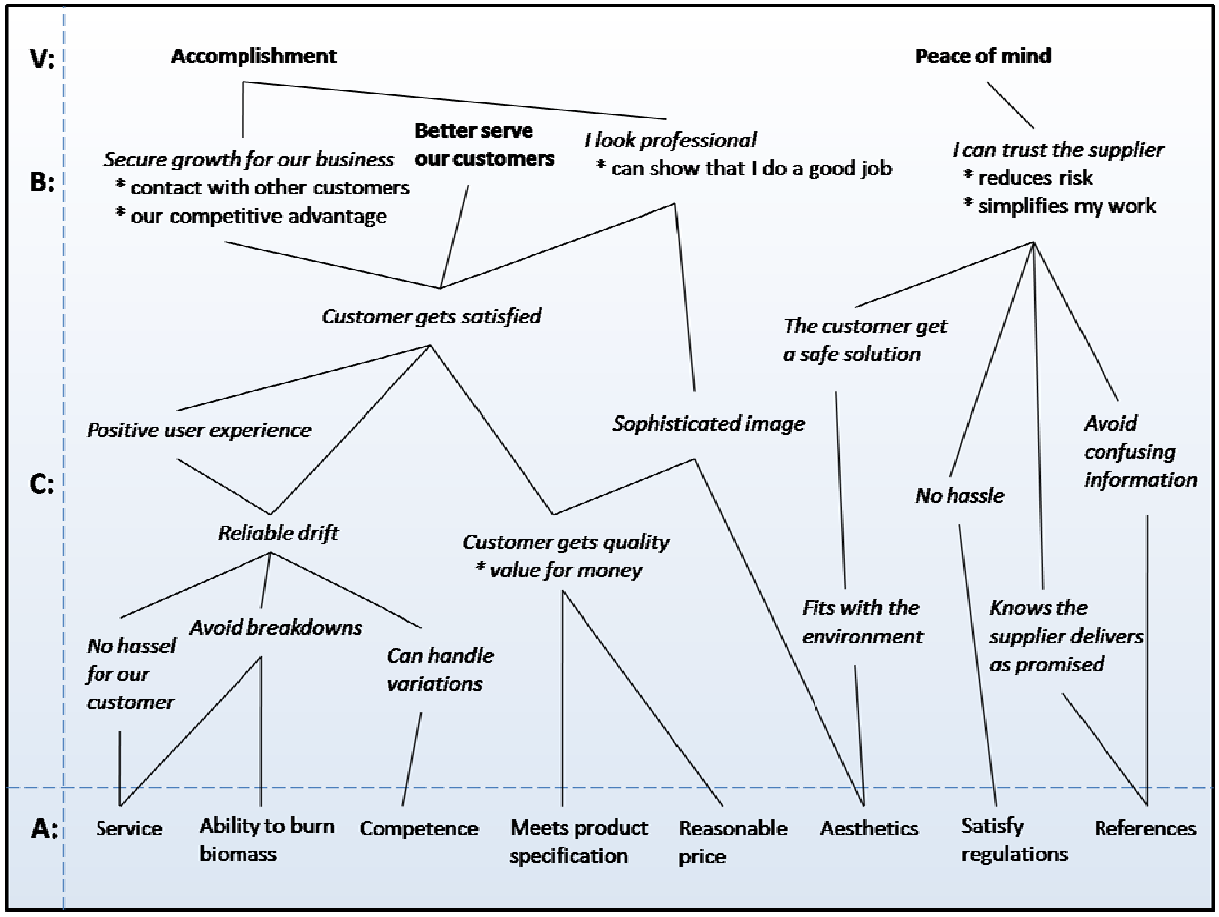


Figure 5.1: HVM for consultants Data source: Ladder interviews with consultants (2009)

Analysis of consultants

By climbing up the ladders of the HVM, one can see how more tangible supplier attributes link with more intangible benefits and personal values in the minds of the consultants. The map shows how benefits for the consultants are linked with their underlying need, values and motivations. In turn, benefits can be traced to what specific supplier attribute are required in order to realize desired benefits.

For instance, according to the HVM consultants search for solutions that secure growth for the business and make them look professional in order to experience a sense of accomplishment. It seems that securing growth for the business is perceived by consultants to be a consequence of satisfied customers. Satisfied customers is further associated with solutions that offer reliable drift and perceived customer quality. By going further down the

ladders, it is possible to identify a range of supplier attributes associated with reliable drift and quality. Supplier attributes related to reasonable price and meets product specifications are associated with quality. Competence, service and ability to burn biomass are associated with reliable drift. One example of a ladder could be: (A) meets product specification (A) reasonable price – (C) customer gets quality – (C) customer gets satisfied – (B) Secure growth for our business – (V) Accomplishment.

The theoretical chapter established some presumptions with the means-end theory that will be elaborated on. One presumption is that deeper values and benefits are already established in the minds of the consultants. Consultants seek supplier attributes as means to achieve their already established deeper benefits and values, not the other way around. If a consultant for instance encounters an alternative that is overpriced, he or she does not link proper consequences with desired end states and thus reject the solution over another reasonable priced solution. A preferred supplier of biomass heating plants is a supplier who successfully delivers on attributes that link with proper consequences and end states for consultants. The HVM offer insights to the most important supplier attributes at the time when the research was conducted and how consequences are linked with deeper benefits and values in the minds of the consultants.

Three values were identified during in-depth laddering interviews with consultants. It was *peace of mind*, *accomplishment* and *better serve our customers*. *Peace of mind* was mentioned by all respondents. It was expressed by Rolf Hermansen (interview 2009) that if a consultant do not perceive they can trust the supplier, he or she run the risk of ending up as the scapegoat if anything goes wrong. A sense of *accomplishment* was also mentioned by all respondents. As expressed by Christoffer Oustad (interview 2009), finding elegant solutions that the customer gets satisfied with are associates with doing a good job as a consultant. It helps consultants getting in touch with other clients and makes them look professional. *Better serve our customers* was also mentioned by all respondents. As commented by Lars Bugge (2009), consultants are driven by satisfied customers. It is why the consultants are in the business.

Deciders

In sum, different supplier attributes link with various underlying motives in the minds of the consultants. Findings presented in the HVM will be applied at a later stage.

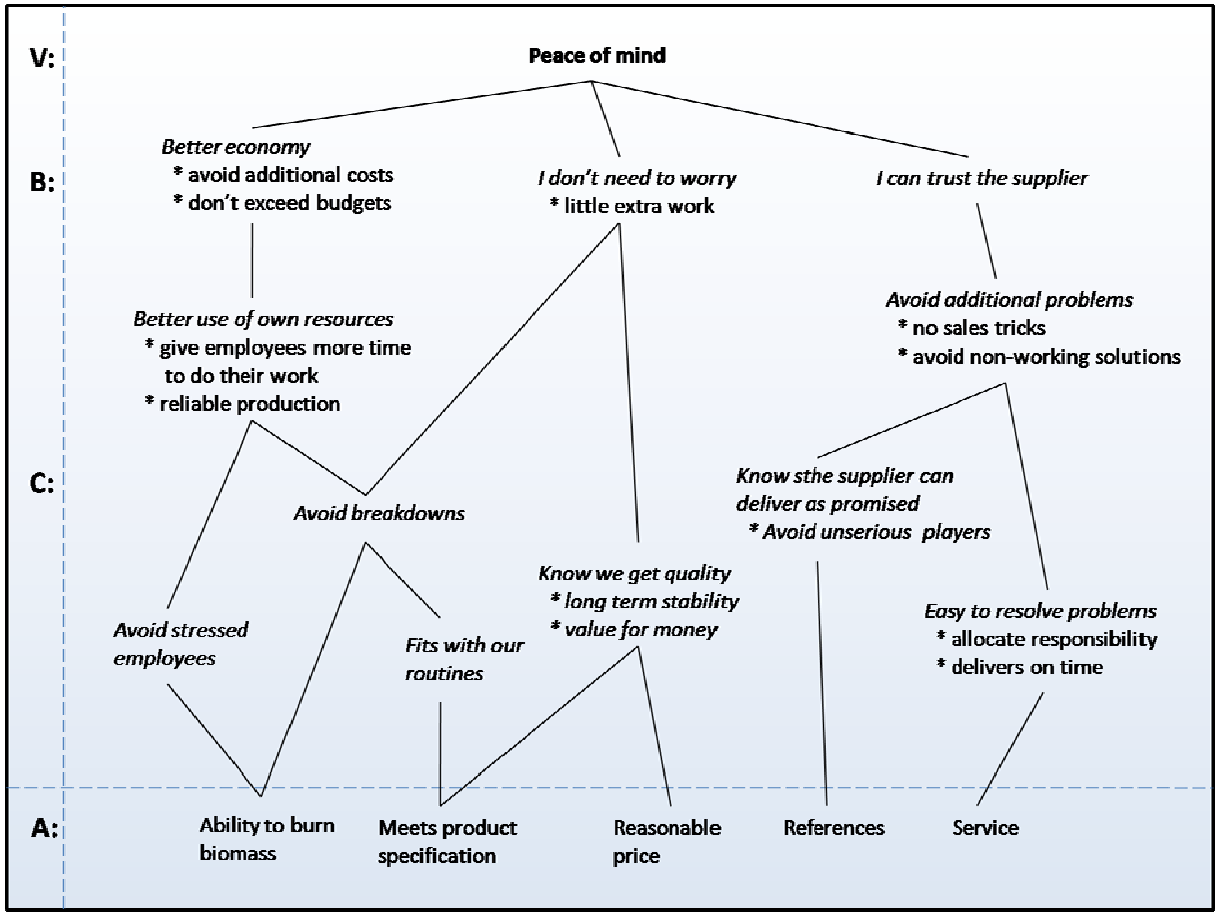


Figure 5.2: HVM for deciders Data source: Ladder interviews with deciders (2009)

Analysis of Deciders

The HVM portrays how deciders in the given segment link supplier attributes with consequences, benefits and values in their mind. Respondents showed similar answers thus further enhancing the validity of findings. The HVM follows same principles as for consultants. For instance, peace of mind was found to be linked with trust in the supplier. Deciders associate a trusted supplier with a supplier who offers good service conditions along with references in order to avoid additional problems. It seems that deciders are often the person who needs to deal with any problems occurring with the heating plant.

It could explain why only one value was identified amongst all respondents. It was *peace of mind*. As Tormod Gevelt (interview 2009) explained, deciders are seeking a solution to their problems. For them it seems biomass heating plants are associated with additional work.

This was also confirmed in earlier chapters. Converting from other energy sources to biomass is also accepting more work for the customer.

5.4 Discussion

The means-end theory has not received as much attention as other research methods in industrial markets. This paper is built on a limited number of similar means-end studies. In order to validate findings, results are also compared with other research methods.

No study was found that employs laddering techniques on subgroups divided into consultants and deciders as done in this paper. But, for instance Reynolds et al (2001 p.326) separated between different subgroups as decision makers, influencers and deciders in their research. Given the market structure in this paper, it is suggested that consultants play a crucial role in the decision making process. It thus makes sense to threat consultants as a separate sub-group along with deciders.

Consequences identified by both consultants and deciders related to quality, reliability and performance are consisted with findings from several publications and studies in industrial markets (Lynch & De Chernatony 2007 p.124, Norton & Reynolds 2001 p.327, Michell et al 2001 p.421). It is interesting to note that these theorists claim such criteria to be generic or minimum requirements and offer only limited potential for differentiation. While it is difficult to argue similar claims in the biomass heating industry, consistent findings demonstrate the validity and the application of means-end theory in the given industry.

Values related to *better serve the customer* is consistent with research carried out by Mentzer et al (1997). Mentzer et al applied means-end theory and hierarchy value models in a B2B logistic service context. In their study, they wanted to understand the values and needs of channel members in an industry for military logistic services. Data was collected after conducting focus group interviews with defense logistic agencies. They identified values of quickly satisfying customer needs and responsibility to stakeholders, suggesting that what defense logistic agencies really wanted was support in serving their stakeholders. It is suggested that such values are similar to how consultants perceive better serve the customer, thus enhancing the validity of the findings in this study.

Peace of mind is a common accepted value in B2B markets (Lynch & De Chernatony 2007 p.125). For instance, FedEx promises its customers peace of mind (Kotler & Pfoertsch 2006 p.177). In a more recent published book, Mark E. Parry argues that two common values are relevant in business-to-business markets. Building on the means-end theory Parry claim such values relate to peace of mind and social recognition (Parry 2005 p.121). *Peace of mind* is a value that is consistent with findings from both consultants and deciders in the biomass heating plant industry. The consistent finding with Parry's theories thus enhances the validity of applying the means-end theory in the given industry.

One interesting observation is that all respondents classified as consultants expressed the sense of *accomplishment*. This value has not been identified in similar studies conducted in business markets. One explanation could be the context this study was performed in. Given the Norwegian language, it may translate to similar terms in other studies. As Parry (2005 p.121) argues social recognition is a common value in business markets. While social recognition was not expressed by any respondents, it is similar to what consultants refer to as getting in touch with other customers and looking professional. Thus the feeling of accomplishment could be similar with Parry's definition of social recognition. Further research could validate or reject this finding.

Findings are not consistent with a major study presented by Wansink (2003). After applying the means-end theory and conducting 1200 laddering interviews Wansink (2003 p.114) found seven personal values to be consistent across his research. These values are accomplishment, belonging, self-fulfillment, self-esteem, family, satisfaction and security. Expect from security, Wansink claim these values can be associated with social and self-actualization levels of Maslow's hierarchy of needs. The inconsistent findings could be explained by the difference between consumer and business markets. Wansink conducted his research in consumer market with consumer brands. Based on this contrary finding, it is reasonable to argue that different personal values seem to be relevant in the given industry compared with a B2C context. It supports the argument to classify the biomass heating industry as a B2B context.

Studies examined in this paper show that one country in particular stands out as a suited country for comparison, Germany. Weidmann (2005) found some empirical evidence for measuring brand equity in the German energy market consistent with findings in this paper. He set out to investigate if it is possible to escape from pure price pressure by adopting branding techniques. He used commercial enterprise customers in the German energy market as sampling units and discusses implications for both B2B and B2C context. By conducting causal analysis on data collected, he found that associations towards customer orientation, price, competence, reliable supply and local attachment have impact on customer retention. It could be argued that similar factors, except the importance of localness was identified as important decision criteria amongst respondents in the biomass heating industry in Norway. The consistent finding indicates the industry seems to be similar with German energy markets. The German energy markets offer several interesting business case studies to energy branding and could serve as important benchmarks.

Some preliminary insights to energy branding were however not confirmed by the research. Much attention has been given to green customers and the effect of green branding in energy markets. Wustenhagen & Bilharz (2006) reviewed existing literature on renewable energy policy in Germany between 1973 and 2003. They claim that customers in liberated energy markets may directly influence the way their power is made by demanding specific products (Wüstenhagen & Bilharz 2006 p. 1689). Although the end product looks and feels the same, according to the authors green power customers may not support unsustainable energy sources. It offers an opportunity for energy providers to differentiate on green energy and escape commodity competition. Similar claims have also been suggested by several informants in the Norwegian bio-energy market. For instance, initiators seem to be driven by environmental concerns. Analysis in chapter 3 show that the political will for green energy is supported throughout the heat market value chain.

The means-end analysis does however not support that such considerations is important in the biomass heating plant industry. It was not mentioned by any respondents that attributes related to innovation, environmental concerns, localness or corporate social responsibility is regarded as important decision criteria. In a study on energy brands, Hartmann and Ibanez identified the impact of brand associations, satisfaction and switching costs on customer loyalty in residential energy markets (Hartmann & Ibanez 2006). Their study suggests that

the attributes mentioned above might have a significant impact on the evaluation of energy suppliers.

The failure to identify green energy attributes in this paper could be explained in several ways. One explanation could be the research design in this paper. Research is limited to two sub-groups in the given industry. For instance, initiators in the industry seem to be driven by environmental concerns. Further research conducted on additional sub-groups could provide more detailed descriptions on green branding in the heating plant industry.

Another explanation could be that while criteria related to green energy are relevant, they are not considered important decision criteria. If so, it seems that green branding have little effect on decision making in the biomass heating plant industry. Such claim is consistent with Keller who reports that from a branding perspective, green marketing programs have not been entirely successful (Keller 2008 p.479). It is considered as an unexpected finding in this industry. As commented by Rolf Hermansen and Lars Bugge (interview 2009), it seems economical benefits drive the future demand of biomass heating plants in Norway, and not the environmental benefits.

5.5 Main Findings

The research carried out shows interesting findings. First, the research supports the claim that the given industry is structured as a B2B market. Research conducted in similar contexts show similar results. Second, consultants and deciders in the industry appear to be influenced by more rational and more emotional factors. They also seem to place more importance on the companies behind the brands than brands themselves. Respondents listed a range of supplier attributes rather than product features. Such finding is consistent with theories claiming that in B2B context, it is buyers and sales staff that interacts, not customers and brands as in consumer environments. Third, while green branding was expected to influence their decisions, it was not supported by the research. While green marketing might be relevant, it does not seem to influence the most important decisions in the given industry. Last, deciders and consultants seem to be influenced by different underlying needs, values or motivations according to their role.

5.6 Means-end Theory and why the Gasification Technology does not sell

Agder Biocom has not sold any plants during the writing of this thesis. The new technology offers several possible customer benefits compared with existing solutions. Related to means-end chain theory it could be explained why it is difficult to sell the new technology. Benefit and value associations are already established in the minds of the decision makers in this industry. They already link a set of supplier attributes with desired end states. Such links could be created long time back and be hard to change for any marketer or brand manager. In order to do so, both ability and motivation is needed before decision makers alter the perception in their minds. When decision makers do not embrace new features with the gasification technology it could be explained that they do not link the technical attributes with proper desired end states. For instance, research shows that deciders in this industry are seeking solutions that offer them peace of mind. If a decider is not convinced the new technology will offer them peace of mind, he or she is likely to reject the offer over an alternative that offers peace of mind. It could indeed explain why pushing new technology to the market no longer provides sufficient arguments to convince decision makers.

Chapter 6 - Competitive Frame of Reference

Previous chapter offered insights from the customers view. According to Keller (2008) the other crucial element of branding is to understand what competitors are doing in order to establish proper points-of-parity and points-of-difference associations. Such statement is consistent with Kotler & Keller's claim of balancing customer and competitor orientations (Kotler & Keller 2006 p.178).

6.2 Value Added Features

An early decision is to pursue a differentiation strategy rather than cost-leadership strategy in the given segment. The main argument is that price communicates quality, and the cheapest offer could indeed be rejected by key decision makers in the industry (interview with Tormod Gevelt 2009). Decision makers in the industry seem to associate low price with future drifting problems (interview with Rolf Hermansen 2009). It could explain why competitors have differentiated their offerings.

The generic product the customer is really buying is heated water (interview with Jan Bjarne Wormli 2009). If stripped from all its value added features, a biomass heating central offers heated water for its customers. Kotler & Keller (2006 p.166) argue that differentiation is a strategy to obtain a competitive advantage. They claim products and services can be differentiated in a number of ways. It serves as basis for analyzing main competitors in the 1 – 2 Mw segment.

The main competitors are presented along with a short description on how they are seeking to differentiate its product and service offerings. Also, desired associations describe how each competitor seeks to position itself in the category.

6.3 Main Competitors

Main competitors were identified after conducting interviews with informants. Informants were asked to mention a list of preferred suppliers in the 1 - 2 Mw segment. Later, competitors were classified according to their focus on the 1 - 2 Mw segment along with their experience and references in Norway. It is difficult to provide valid data on market shares. Early observations presented by the Tratec Group indicate that five main competitors make up around 40% of the segment.

TPS [4]

TPS is considered one of the largest players in the segment with around 11% market share. It is located in Sweden and was formed in 1992. It has established a firm position in the Norwegian market. TPS focuses its presentation on R&D initiatives.

Product differentiation

TPS offers a range of products. Most interesting is a factory built and transportable heating plant. The unit can be delivered in sizes 150 Kw to 5 Mw. The heating plant is differentiated with several features such as fuel handling system and PLC control system. It is a flexible solution that can be customized to fit customer needs. TPS also claim the technology offers quality, reliability and reparability for its customers. It highlights the ability to burn crashed wood together with low maintain, - and repair costs. The plant is build in container with exterior that is adaptable to fit surrounding buildings, thus it is also differentiated on form and style.

Service differentiation

TPS offers extensive commission and operator training with its offerings. Thus it seeks to differentiate its service offerings. TPS also claim to have expertise in the installation and delivery of biomass heating plants.

Desired associations

International experience	Technological expertise	Quality products
Strong references or user profiles	R&D and being innovative	Excellent customer service
Taking environmental initiatives	Adapts to customer needs	Highly competent staff

Weiss[5]

Weiss is another major player located in Denmark with its 10 percent market share of the total market. It communicates its unique technique along with its satisfied staff. The technology is different from TPS as it puts more emphasize on building the plant on site.

Product differentiation

Weiss do not offer pre-fabricated plants, but rather offer a range of products in order to customize its offerings to each customer. Weiss delivers complete plants that can produce

[4] Data collected from brochures and www.tps.se
[5] Data collected from www.weiss-as.dk

up to 20Mw. The plants are differentiated with a range of features such as control systems and transportation systems. Weiss also claims to deliver quality products that are reliable and repairable thus further differentiating its product offerings.

Service differentiation

It has 15 fully equipped service cars that ensure effective maintenance and repair. It also differentiate its service by ensuring ordering ease, delivery and installation through own expertise along with qualified suppliers. Weiss also offer customer training and offer to help customers from idea to implemented plant.

Desired associations

70 years of experience	Technological expertise	Quality products
Strong references or user profiles	R&D and being innovative	Excellent customer service
Adapts to customer needs	Highly competent staff	

Hotab [6]

Hotab is another major player located in Sweden with its 7 percent market share. Hotab emphasizes its 30 years long history along with its environmental concern.

Product differentiation

Their most interesting product is transportable plants that can produce up to 2,5 Mw. The plant is differentiated with a range of features similar to the offerings of TPS. The plant is fully flexible in order to be customized to each customer. Hotab also highlight their expertise that ensures the quality and reliability of their products. The plants ability to fit with buildings also differentiates it on style and form.

Service differentiation

Hotab offers several service workers who perform maintenance and repair when needed and thus differentiate its offerings. Hotab also highlights a competent staff that ensures proper delivery and installation of plants in order to further differentiate its offerings.

[6] Data collected from www.hotab.se

Desired associations

30 years of experience	Technological expertise	Quality products
Strong references or user profiles	R&D and being innovative	Excellent customer service
Taking environmental initiatives	Adapts to customer needs	Highly competent staff

STX Grenland Industri AS department of Bioenergy [7]

STX is a company located in Norway. It is part of a bigger industrial group and claims to be a leading supplier of biomass heating plants. STX focuses on its leading position along with its leading competence and technology.

Product differentiation

STX offers pre-fabricated plants placed on containers. SGP does not inform the capability of the plants, but they can produce at least 1,25 Mw. It is possible to include several plants in order to produce 2 Mw. The plants are differentiated with a range of features similar to the ones of TPS and Hotab. STX claims the technological quality leads to reliable and durable solutions thus further differentiating their products. The plants can be customized to each customer's demands and may be designed to fit with buildings. Thus it is differentiated on customization, form and style.

Service differentiation

STX differentiates its service by offering extensive maintenance and repair deals. It also differentiates on fast deliveries and simple installation along with customer training programs.

Desired associations

Adapts to customer needs	Technological expertise	Quality products
Strong references or user profiles	Highly competent staff	Excellent customer service
Taking environmental initiatives		

[7] Data collected from brochures and www.stxgrenlandindustri.no

SGP[8]

SGP is located in Norway and offer plants producing up to 1,5 Mw. SGP focuses on being a leading supplier with the longest operating history in Norway.

Product differentiation

SGP has a range of products in order to customize its offerings to each customer. It further differentiates its products by offering a range of features similar to other suppliers. SGP uses leading product from international sub-suppliers in order differentiate products that offer quality, reliability and durability.

Service differentiation

SGP differentiates its service offerings by introducing courses for customer training. Service also includes personnel who ensure easy delivery and installation.

Desired associations

Taking environmental initiatives	Technological expertise	Quality products
Strong references or user profiles	Adapts to customer needs	Excellent customer service

Secondary Competitors

Secondary competitors may take the step up and become a main competitor. Secondary competitors do not seem to focus on the given segment in Norway, but are considerable large players in other segments in the industry. They should be monitored as they might enter the competition in the 1 - 2 Mw segment. Such competitors include Justsen, KMW Energi, Enertech, Köb, Linka, Järnforsen, Eldab, Veå, Petrokraft and KLM.

Chapter 3 portrayed how new entrants and substitutes may pose a threat in the industry. Such finding is consistent with Keller who warns not to define competition too narrowly (Keller 2008 p.105). He argues that competition can occur at the benefit level rather than the attribute level. For instance could a heating plant burn with oil or gas. Running a plant with oil or gas involves less work and worries for the customers in the category. Competition on such aggregate levels will not be elaborated on further in this paper. Data does not provide sufficient information to address such issues.

[8] Data collected from brochures, interview with Christian Brennum and www.sgp.no

6.4 Analysis

The presentation of main competitors shows a number of interesting observations. By comparing desired associations it is possible to comment on how competitors seek to position themselves in the 1 – 2 Mw segment. Table 6.1 compares each desired association according to the five main competitors.

	TPS	Weiss	Hotab	STX	SGP
Desired association					
International experience	●				
Technological expertise	●	●	●	●	●
Quality products	●	●	●	●	●
Strong references or user profiles	●	●	●	●	●
R&D and being innovative	●	●	●		
Excellent customer service	●	●	●	●	●
Taking environmental initiatives	●		●	●	●
Adapts to customer needs	●	●	●	●	●
Highly competent staff	●	●	●	●	
Long history		●	●		

Table 6.1: Desired associations compared by main competitors

The table shows how members in the category seek to be perceived with similar associations. Except on portraying a long history and international experience, no associations seem to be unique to any competitor. It should be noted that these associations are based on how members communicate their offerings. It does not offer insights into how consumers associate competitors. Additional research could provide crucial insights.

The empirical data identified product or service differentiation as suggested by Kotler & Keller. It enhances the application of their theories in the given industry.

6.5 Discussion

In order to compete in the industry it seems the main competitors have developed a range of value added features through product and service differentiation. It seems difficult to further differentiate products or services in the given industry. Rather, members appear to argue over who has the superior offerings on similar terms. Such conditions may indeed lead to fierce price competition. It could explain why the industry experiences low profitability.

Keller makes the distinction between category points-of-parity and competitive points-of-parity (2008 p.109). Table 6.1 shows that all members are seeking to portray an image of having technological expertise, quality products, strong references or user profiles, excellent customer service and adapts to customer needs. Hence these associations should be considered as category points-of-parity associations. Most members also portray an image of being innovative, having highly competent staff and taking environmental initiatives. It is suggested these associations also be included as category points-of-parity associations.

The data collected offers less insight to competitive points-of-parity associations. Competitive research should be conducted in order to better understand how consumers perceive main competitors. In the end, it is not how each competitor tries to position itself; it is how consumers associate their sum of offerings. TPS is the only company to focus on international experience in its communication. It may be relevant in the minds of the consumers, but research in this paper does not support it. It is similar with Weiss and Hotab who seek to communicate their long history within biomass heating plants.

Based on the data collected no distinct market leader is identified, and it seems that few initiatives have been done in order to build a distinct B2B brand in the industry. Rather it seems that members in the industry are trying to compete on similar offerings and category points-of-parity associations such as quality products, excellent customer service, innovative image and environmental initiatives. This claim is also supported in chapter 3. Lars Bugge (interview 2009) commented that it was difficult to sort out what information to trust in the given industry. It seems all members claim to have superior offerings, a strong company name and highly competent staff. It indicates that a strong B2B brand could differentiate from competitors by building strong, favorable and unique associations in the minds of the consumers.

6.6 Short term Product Differentiation vs. long term Brand Equity

The new technology with gasification could provide Agder Biocom with a competitive advantage. It seems to have some unique benefits for the customers. Agder Biocom could differentiate its product offerings in a way that is difficult for competitors to copy. However, on a long-term perspective it is likely competitors copy the technology. This argument is well supported by theorists who claim it is widely accepted that the technological development make it easier for competitors to copy technological advantages, that consumers have increased access to information about firms and products, and that these developments has created a need amongst B2B firms to gain a sustainable competitive advantage. Analysis in this chapter showed that no member seem to have a distinct position in the industry. Hence, it is an unexplored opportunity to build strong, favourable and unique associations in minds of the consumers in order to build brand equity. Such argument is consistent with Jensen & Klastrup (2008) who has presented a B2B customer-based brand equity model. Their substantial argument is that B2B brands should and do include nonrational values (Jensen & Klastrup 2008 p.127). Their findings conclude that differentiation should be the main area of improvement. Efforts done to build B2B brands should be about improving and communicating the brand's uniqueness and advantages over other brands (Jensen & Klastrup 2008 p.127). It relates to points-of-difference and will be discussed in next chapter.

Chapter 7 – Gaining the Competitive Advantage

Kotler & Pfoertsch argue that: *"It is crucial to keep a strategic perspective since positioning a brand is not a tactical activity but rather a strategic process aimed at creating a sustainable competitive advantage"* (Kotler & Pfoertsch p. 173). The purpose of this chapter is to present a framework to discuss how Agder Biocom can achieve a distinct brand position in the biomass heating plant industry. It builds on the theoretical model presented in chapter 2. The discussion will be divided into four main parts as shown in figure 7.1 to the right. Kotler & Pfoertsch (2006) argue that a B2B brand strategy should be based on the brand core, its values and associations along with product and service offerings. These elements are related to each other and need to be consistent in order to build a proper brand positioning strategy.

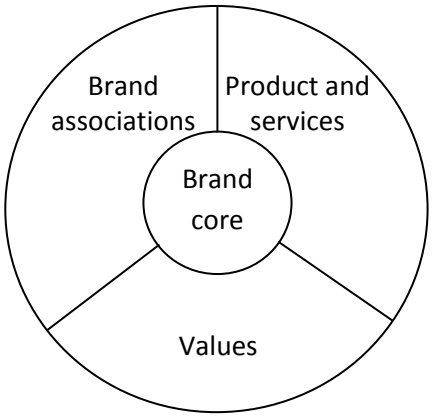


Figure 7.1: Brand Strategy

Source: Kotler & Pfoertsch (2006 p. 170)

In a study conducted by Aspara & Tikkanen (2008) they found that companies in B2B markets tend to move away from purely name or product focus and more towards identity, employees and values. According to Aspara & Tikkanen (2008) customers in B2B markets place more emphasizes on the company behind the brand than the brand itself. This finding is persistent with the structure of the biomass heating plant industry. As argued in chapter 5 it seems respondents emphasize a range of supplier attributes, not only products or names. Thus the remaining of this paper will emphasize the corporate B2B brand Agder Biocom.

7.2 Part 1 – Crafting the B2B Brand Positioning

As presented in chapter 2, it is crucial to craft a brand positioning relevant for all significant players in the decision making unit and decision making process. Chapter 4 included a presentation of the main decision makers in the 1 – 2 Mw segment of the biomass heating plant industry. It identified four distinctive roles: deciders, consultants, initiators and users. Out of the four roles, consultants and deciders are considered to be key decision makers in the industry. Thus, when crafting a brand positioning it should be perceived as relevant in the minds of these decision makers. Consultants and deciders are emphasized in order to demonstrate the application of the means-end research in this paper.

7.2.1 B2B Brand Positioning

While many guidelines exist on brand positioning, the work in this part is adopted from Keller (2008) and his CBBE model. As Keller puts it: *"According to the customer-based brand equity model, deciding on a positioning requires determining a frame of reference (by identifying the target market and the nature of competition) and the ideal points of parity and points of difference brand associations (Keller 2008 p.131)."* The CBBE model presents the dynamic nature of brands and is applied in order to identify sources of brand equity in the given industry. The model is shown in figure 7.2. An overarching claim of the model is that a strong brand is built by appealing to both the heads and hearts of consumers. Brand equity, as defined by Keller (2008) occurs when a brand is known and has some strong, favorable and unique associations in the minds of the consumers.

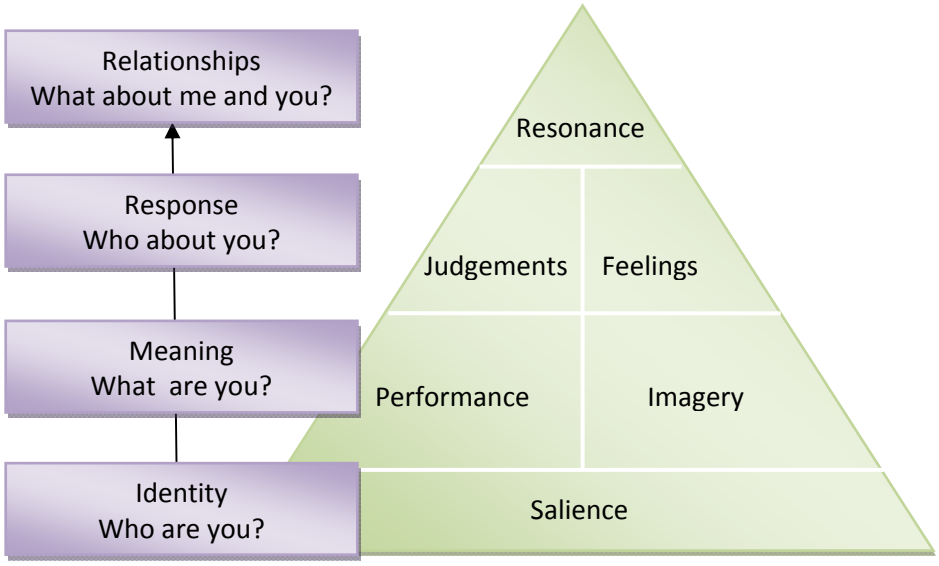


Figure 7.2: Keller's CBBE Model *Source*: Keller (2008 p.61)

7.2.2 Establish Category Membership

Significant decision makers in the given adopt a consideration set and evaluate suppliers on a range of attributes. In chapter 6 it was argued that Agder Biocom must be associated with points-of-parity associations in order to be perceived as a valid member of the biomass heating plant industry. Thus, consumers in the target market should ideally associate Agder Biocom with the following points-of-parity associations:

- Quality products and technological expertise.
- Excellent customer service and ability to adapt to customer needs.
- Competent workers and strong references in the industry.
- Taking environmental initiatives and innovative performance

Comments:

These associations should be considered a minimum. Research conducted in this paper also indicates that performance related associations such as price, product reliability, durability and serviceability should be considered category points-of-parity associations. Many of these dimensions were identified as competitor service and product differentiation, but for the simplicity of this paper will not be further elaborated on. The set of these associations are summarized as quality products/technological expertise and excellent customer service/ability to adapt to customer needs.

It may also prove that imagery related associations such as user profiles, purchase and usage situations, and personality and values could be relevant category point-of-party associations. However, this paper only identified references in the industry along with competent workers that summarize more imagery associations.

Taking environmental initiatives and innovative performance are two category points-of-parity associations that have received attention from later published work. Category members seem to believe that taking environmental initiatives and innovative performance are important. This claim is not supported by respondents in the means-end analysis. One explanation could be that initiators and/or users consider such criteria as important. These sub-groups were not included in the research. Such claim is consistent with empirical data presented in chapter 4. According to several informants, initiators in the industry are often driven by environmental concerns. It should thus be included as a category point-of-parity association along with innovative performance.

Implications for Agder Biocom

To establish a proper category membership has several implications for Agder Biocom. It shifts the focus from a more inside-out technological perspective and balances it with an outside-in customer and competitor perspective. Managers should not start to communicate

exaggerated marketing promises in order to establish proper category points-of-parity associations. Such efforts are most likely to backfire and could seriously harm its business reputation in the market place. Rather, managers are advised to invest and build up the company's infrastructure, competence and culture so it is able to differentiate its product and service offerings to match those of the main competitors. It is related to the basic value proposition it should be able to deliver on each time for its customers.

Consumers also need to perceive Agder Biocom with the category points-of-parity associations identified above. This statement is supported by findings in chapter 4 and 5. Key decision makers in the industry pre-qualify suppliers. If consultants or other key decision makers do not perceive that Agder Biocom is able to deliver on the category points-of-parity associations, it should not expect to be considered as a valid member of the category and thus be rejected in the evaluation phase of the buying process.

It seems category point-of-parity associations occur mainly on the supplier attributes level according to the means-end theory. Category members have done fewer attempts in order to build deeper benefits or value links with the consumers. Such finding could imply that competitors neglect emotional values and still focus mainly on more rational decision criteria. Research conducted in this paper supports both emotional and rational decision criteria are important in the given industry. Such claim supports the earlier statement that there is an unexplored opportunity to build and manage sources to brand equity.

Although further competitive research is suggested, data collected in this paper did not identify any relevant competitive point-of-parity associations. Agder Biocom's managers do not need to neglect competitive point-of-parity associations, but should rather monitor the competitors' actions.

7.2.3 Brand Positioning and Point-of-Difference Associations

The most relevant findings so far in this paper are summarized underneath in order to set some directions for the discussion on point-of-difference associations.

- Brands are relevant in the given industry.
- It is not identified any relevant competitive points-of-parity associations.
- Competitors seem to neglect emotional B2B brand values.
- There is an unexplored opportunity to build and manage sources to brand equity.
- The means-end chain analysis offer crucial customer insights to brand positioning and point-of-difference associations.
- The B2B brand positioning statement should be relevant for key decision makers.
- Efforts done to build B2B brands should be about improving and communicating the brand's uniqueness and advantages over other brands.

Agder Biocom could go several directions. Related to the means-end analysis, it is possible to craft a positioning around supplier attributes and/or benefits. Agder Biocom could position its brand around supplier attributes such as customer service, the solutions' ability to burn biomass or the ability to customize solutions to meet customer product specification. The problem with attribute-related positioning statements is that it is relative easy for competitors to copy point-of-difference associations. It has already been argued that it is relative easy to copy technological, - or service related advantages. If consumers perceive that the ability to burn biomass separates Agder Biocom from its competitors, it is highly likely that competitors will adapt similar features to their solutions. Thus, Agder Biocom should build its positioning statement at a deeper level in order to obtain a sustainable competitive advantage.

According to the CBBE model, associations are classified as either functional, performance-related considerations or more abstract, imagery-related considerations. Brand performance meets customers' more functional needs and is thus similar to more functional consequences identified in the means-end analysis. Brand imagery meets customers' more psychological or social needs and is thus similar to more psychological consequences in the means-end analysis. Based on this reasoning, it is possible to classify data collected in chapter 5 into considerations as done underneath:

Functional, brand performance related considerations

Quality – Reliability

Abstract, brand imagery-related considerations

Peace of mind – Accomplishment – Better serve our customer – Trust

Comments:

Data are gathered from the means-end analysis and transferred into more common accepted considerations as identified above. It will be elaborated on underneath.

Quality is translated from what respondents consider as customer gets quality. From the HVM it is possible to argue that attributes such as reasonable price and ability to meet product specification could be associations that build this image in the minds of the consumers.

Reliability refers to competence of the company and its solution's ability to handle variations and burn biomass properly. It also refers the supplier's ability to handle any problems so the customer avoids hassels. Associations based on such attributes could be built in order to obtain an image of being reliable.

The work done by Keller & Webster (2004 p.399) suggest that brand imagery considerations in B2B markets could be expertise, trustworthiness, ease of doing business and likeability. It will thus guide the discussion on image related considerations.

It is suggested that peace of mind is similar to ease of doing business. It seems that associations towards various benefits, consequence and attributes could achieve an image of ease of doing business. For instance could deciders perceive ease of doing business with a supplier that offers proper customer service and delivers as promised. Thus it should be considered possible sources to brand equity.

Trust in the supplier is similar to trustworthiness. Deciders and consultants link trustworthiness with a supplier's service attributes and references. Associations built this way could also be considered possible sources to brand equity.

Considerations related to better serve the customer and accomplishment are only valid in the case of consultants. Because the brand positioning should be relevant for key decision makers, these considerations should not be included as possible points-of-difference associations.

Following the discussion above, it is left two more performance related considerations (quality and reliability) and two more intangible imagery related considerations (ease of doing business and trustworthiness). It is argued that in the given category, these considerations are most suited for the purpose of building points-of-difference associations.

Implications for Agder Biocom

Agder Biocom's mangers should decide on one of these considerations in order to build unique points-of-difference associations. As commented by Kotler & Pfoertsch (p.173) *"A brand can only have one true position"*. It is difficult to argue which one of the four considerations is the best based on the research conducted in this paper. As argued earlier it seems no competitive brand has a distinctive position, thus it should be possible to obtain any of these positions for Agder Biocom in the given industry.

Managers must also consider which position its business is most likely to deliver on. It should include an internal audit on the company's culture, competence and stated objectives. While this paper offers customer insights, it should be a balancing act between the company's own resources and the customers' needs and wants. When it has decided on one position, it should apply the principles behind the CBBE model in order to build and manage sources to brand equity. It should identify attribute and benefits associations that are difficult for competitors to copy. The means-end chain analysis offer consumer insights as a foundation to start building strong, favorable and unique associations in the minds of the consumers.

Summarized

According to Keller (2008) the sum of brand performance and brand imagery associations make up the brand meaning, or what the consumers should think and feel about the brand. Findings in this paper are presented in figure 7.3.

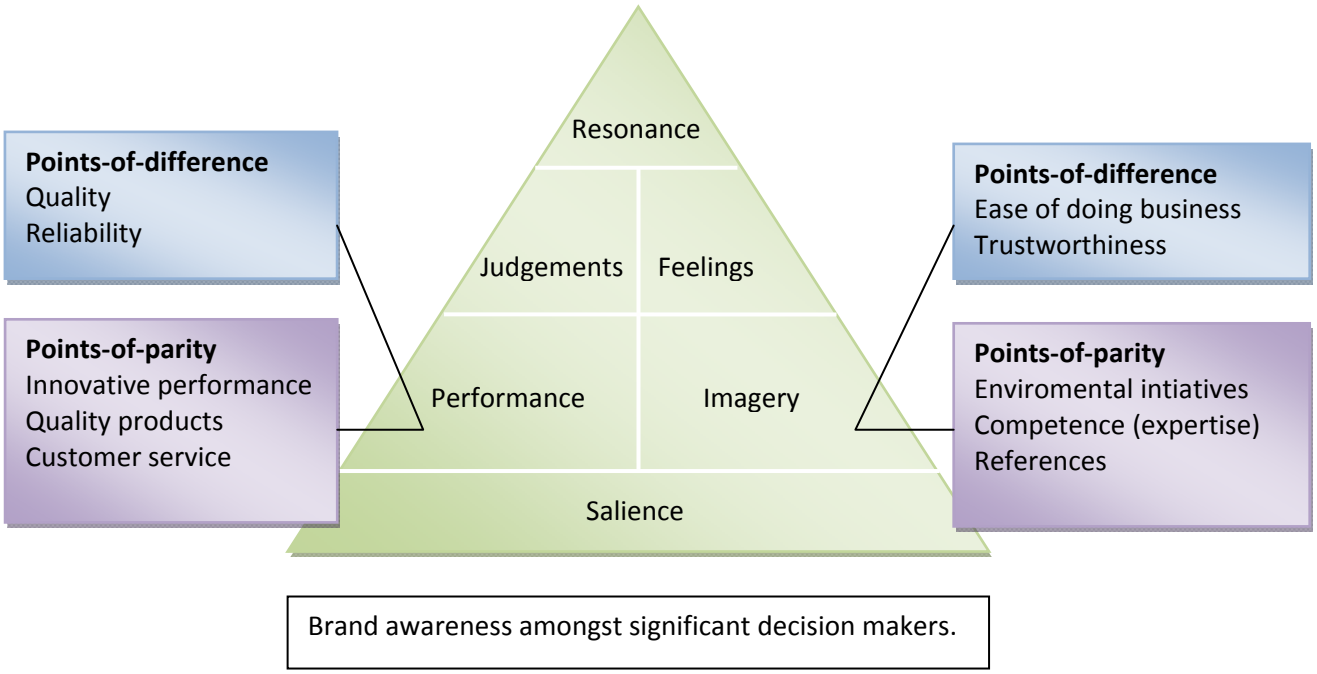


Figure 7.3: Points-of-parity and points-of-difference considerations

Comments:

The CBBE model offers a framework to continuously identify sources to brand equity. The empirical data offers insights to the industry at time when research was conducted. Changing customer needs and wants should be incorporated in a proper brand equity measurement system. Managers should also recognize the importance of building a brand through sequential steps as suggested in the CBBE model. It includes setting proper KPI's for brand awareness along with desired mental and behavioral responses from consumers in the given industry. Mangers should design brand elements, marketing programs and leverage secondary associations in order to achieve a proper level of brand awareness and salience, and provide specific information about particular attributes or benefits it wants to be associated with.

While the CBBE model is well applied in B2C settings, it should be critically applied to the given industry. Kuhn et al (2008) applied the CBBE model in a B2B context using semi-structured interviews with senior buyers of technology of electronic tracking of waste management. Their results suggest different types of feelings and imagery to those specified by Keller may be required in business markets compared with consumer markets (Kuhn et al p.44). More specific, their study did not find imagery associations such as history, personality traits, heritage or experience relevant. The further found that the technology/system is

proven as the most important factor. Kuhn et al (2008) argue that organizational buyers emphasize the selling organizations, including the corporate brand, credibility and staff. Such finding seems to be consistent with the empirical data collected in this paper. The means-end analysis suggested that different set of values are relevant in this context compared with consumer markets. Instead of Keller's suggested imagery associations, it seems that key decision makers highlight competence and references as most important associations in this industry. It could be explained that key decision makers in the given industry place more emphasis on the company behind the brand than the brands themselves. It contributes to the argument to emphasize a corporate brand in the given industry.

Some authors question the CBBE model and its focus on the perspective of the customer (Jones 2005, Burmann et al 2009). It could be argued that the CBBE model is reduced to communicate brand values that are created elsewhere in the company. Delivering a strong brand requires that the whole organization is working with the brand, not only marketing communications. For instance, Burmann et al claim that the CBBE model fails to recognize the internal source of brand equity (Burmann et al 2009). Employees create brand equity from inside the company in interaction with customers. Jones (2005) further addresses non-consumer relations and their role in brand value creation. Especially he addresses the relationships between businesses in B2B markets and other stakeholders, and how these relationships create and co-create brand value. Such arguments support the application of the second part of the analytical framework presented in chapter 2. Agder Biocom should identify and commit to a set of B2B brand values in order to stand out with a distinct identity in the biomass heating plant industry.

7.3 Part 2 – Establish a Brand Identity through B2B Brand Values

The second part acknowledges that the decision making unit is made up by individuals with different needs and wants. Theorists from consumer behavior offer several ways to make distinction on needs and values in consumer markets. For instance two widely applied theories are Maslow's needs of hierarchy and the distinction between utilitarian and hedonistic needs (Solomon et al p. 90-100). It is difficult to argue that same needs and values are relevant in the given context of this paper. Instead, Lynch and de Chernatony (2007) offer some interesting insight to business markets and B2B brand values. They claim that *"While functional brand values may dominate industrial purchase situations, different buying*

centre participants may be influenced by emotional considerations such as trust, security and peace of mind (2007 p.124).” By dividing B2B brand values into more functional and more emotional considerations it is possible to identify the following values from various sources collected in this paper:

Functional B2B brand values

Quality – Reliability – Service – Innovative performance

Emotional B2B brand values

Peace of mind – Accomplishment – Better serve our customer – Trust – Environmental benefits - Expertise

Comments:

Most of these values are adopted from the discussion above while considering points-of-difference associations. Service and innovative performance are included as functional B2B brand values because they are considered to be important point-of-parity associations. Environmental concern and expertise are included as emotional B2B brand values because they were also identified as important point-of-parity associations.

7.3.1 B2B Brand Values, Roles and the Buying Process

Findings in this paper support that different roles appear to be motivated by different underlying needs, values and motivations. While each person is unique in his or her role, the use of ideals demonstrates how Agder Biocom can tailor its communication in order to present the most persuasive arguments to each participant in the buying center. In real life context, sellers should anticipate each participant in order to recognize when to emphasize particular B2B brand values. It will be elaborated on according to the buying process and roles as identified in chapter 4.

Stage 1 Problem recognition

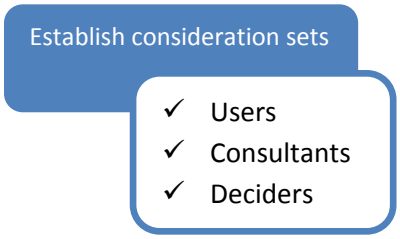
Decision to buy biomass

✓ Initiators

Initiators often are the ones who recognize a problem or need for heated buildings. At this stage they could decide on different solutions such as biomass heating plant, oil driven solutions or electricity. Compared with such alternatives,

biomass offers both environmental benefits and economic benefits. The means-end research analysis did not include initiators, but informants in the industry suggest initiators are driven by environmental and economic concern. Thus stressing these two values along with persuasive arguments could shift the initiators' decisions in favor of biomass and Agder Biocom as the preferred supplier.

Stages 2 to 4, product specification and search of alternatives



A work group consisting of users, deciders and consultants is often formed during these stages of the buying process. Informants claim it is likely that users in the industry emphasize a solution that is reliable and do not offer them additional work. Thus, functional values such as quality, reliability and service could be of relevance to them. Also, more emotional values such as peace of mind and trust could reassure them that Agder Biocom is the most suited supplier.

The HVM that summarize deciders indicate that deeper more emotional values related to peace of mind and trust influence their decisions. The HVM also portray how they seek reliability, service and quality as more functional values.

Last, consultants seem to be influenced by deeper emotional values related to peace of mind, accomplishment, better serve the customer, trust and expertise. In addition more functional values such as reliability, quality and service seem to influence their decision making.

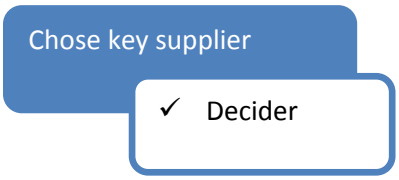
During these stages, it does not appear that any important decisions are made. But providing different members of the buying center with tailored arguments according to their underlying motivations could ensure Agder Biocom become a part of their consideration set.

Stage 5, Proposal solicitation and analysis

It seems that consultants make crucial decisions during this stage thus sales efforts should be prioritized towards them. Rather than overloading consultants with possible benefits, information and promotions it is suggested to sense and comprehend their needs in order to emphasize particular brand values. The HVM offer

insight to how different attributes and benefits link with deeper values. It could provide guidelines to build arguments that trigger the desired values.

Stages 6 to 8, choosing the key supplier



During the final stages of the buying process it is the decider who makes the final decisions. The HVM constructed in chapter 5 identified several values that might influence the decisions.

Summarized

The research identified several B2B brand values relevant in the external environment. It is difficult to argue which of the identified brand values that is most important. Based on the discussion it is argued that both functional and emotional brand values seem to influence the decision making process in the given industry. Such claim is consistent with the theories presented by Lynch and de Chernatony (2007) and enhances the application of the analytical framework. As Lynch and de Chernatony put it: *"Industrial brands that communicate functional values only fail to accept that both cognition and emotion contribute to decision making (p.125)."* Values identified in this paper are presented underneath in figure 7.4.

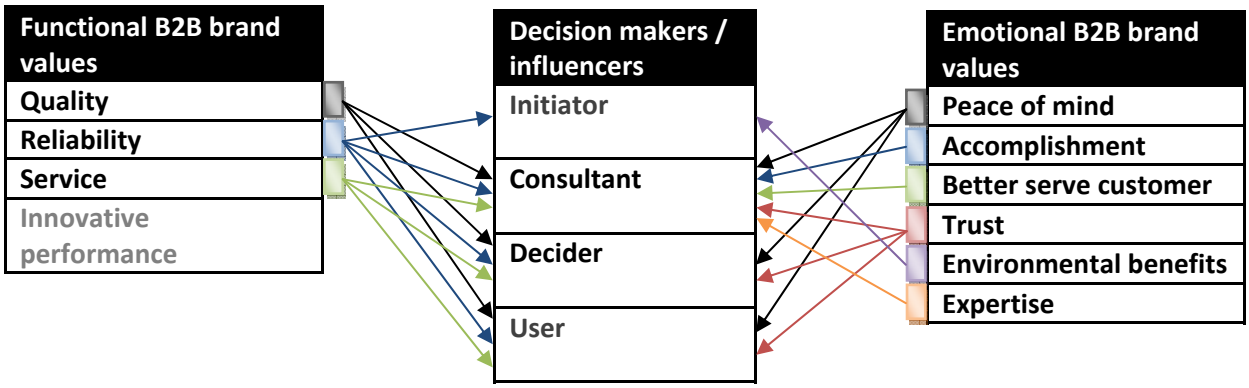


Figure 7.4: B2B brand values tailored to decision makers

Comments:

Research in this paper does not rate the importance of each value. However, the figure above indicates that reliability seems to be the most relevant functional value as it is relevant for all significant decision makers. Peace of mind and trust seem to be the most

relevant emotional brand values as these are relevant for three out of four significant decision makers. Further research could declare which of the values that is most important in the given industry.

Implication for Agder Biocom

The implication for Ager Biocom's managers is to decide on which values it will commit to. For creating B2B brand values is not about communication an external image, but rather build a brand identity around a set of core values. As argued by Lynch and de Chernatony: *"Effective branding practice prescribes a limited number of core values for any organization (usually no more than five) to ensure consistency of both internal and external brand communication (p.125)."* Research conducted in this paper offers insight to the external environment that Agder Biocom operates in. Its managers should also identify a relevant set of values built on the organization's competencies and culture. Once it has decided on a set of values, it should build up its organization so it enacts and empower them. Such organization includes placing the brand at the heart of the business. Making sure it is treated as a strategic asset consistent with the corporate strategy.

7.4 Part 3 – Building the Brand from Bottom-up

This part is added to the discussion as some academics claim top-down branding in industrial markets offer little to customers. As Narayandas puts it*:"Companies start by asking the vision question: what business are we in? Then they segment the business and deploy branding strategies, communication tactics, and sales tools. That top-down approach may work well for consumer products, but in business markets, it leads companies astray, hampering their efforts to acquire and retain customers (2005 p.131)."* It is argued in this paper that a balanced strategy of top-down and bottom-up brand management activities are crucial in order to achieve a strong position in the given industry. This claim is also supported by Keller and Webster (2004 p.400) who argue: *"Both pairs of brand management activities (top-down and bottom-up) can be complementary and mutually reinforcing."* While the first two parts in this chapter consider more top-down approach to brand management, this part discusses the bottom-up approach.

The means-end analysis portrayed how key decision makers evaluate suppliers on economic, technical, service and social attributes. This classification is consistent with Narayandas

typology of benefits (2006 p. 132). Thus the application of means-end theory seems appropriate for the purpose of discussing relevant customer benefits. Narayandas further suggests grouping benefits into four categories. Hence supplier attributes identified in the means-end analysis in chapter 5 can be grouped into the following benefit categories:

Tangible financial benefits	**Nontangible financial benefits**
Ability to burn biomass properly Meets product specification Satisfy regulations Reasonable price	Service Solution reliability Product quality Aesthetics
Tangible nonfinancial benefits Competence References (reputation)	**Nontangible nonfinancial benefits**

Table 7.1: Supplier attributes identified as customer benefit categories
Comments:

According to Narayandas (2005) tangible financial benefits have value that sellers can communicate and buyers can verify. It is argued that in the given sellers can communicate the value of burning biomass, price and demonstrate how their solution meets regulations and the customer product specification.

Nontangible financial benefits are benefits with values sellers can communicate, but buyers cannot easily validate. Service and aesthetics are supplier attributes that sellers can communicate, but not so easily convert into monetary terms. Aesthetics relates to a solution that fits with the environment. It may provide the customer with additional safety and keeping a certain style to its buildings. Such benefits seem to be important for some decision makers, but are not so easily translated into quantitative measures they can validate the importance on. Solution reliability and product quality are classified as supplier attributes although it is considered as consequences in the means-end analysis. Here they are converted into supplier attributes because they are commonly accepted as customer benefits (Narayandas 2005 p.133). While a reliable solution and product quality offer a range of benefits, it is more difficult to turn them into monetary terms that buyers can validate. Thus it should be classified accordingly. For instance could a reliable solution lead to reduced problems in the future and thus offer better economy for the customer. It is relative easy to communicate, but more difficult for buyers to quantify. Such claim is also consistent with

finding in chapter 4. As commented by Lars Bugge (interview 2009), customers in the industry often confuse acquisition costs and operational costs.

Tangible nonfinancial benefits have value that is difficult for seller to quantify, but buyers perceive as important. Competence and references seem to be important decision criteria for consumers in the industry. Yet, it is difficult for sellers to put any valid quantifiable measures on it.

The last quadrant, nontangible nonfinancial benefits have value that both sellers and buyers are unable to quantify. Research in this paper did not identify any such customer benefits. It could include anything from delivering spare parts in weekends to offer advice on the phone during holidays. It is more important for retaining customers.

7.4.1 Benefits Linked to Decision Makers

The importance of buyer-seller relationships in industrial markets justifies the additional investments in adoptive selling. As argued by Narayandas:*"The key to success in such situations (buying center) is keeping in mind that each member of a buying group is usually interested in only one benefit or, at most, a few benefits (2005 p.134)."* The laddering interview in chapter 5 set out to investigate why key decision makers in the given industry chose one supplier over other alternatives. Findings were presented according to supplier attributes. The research showed a range of attributes as summarized in the figure below.

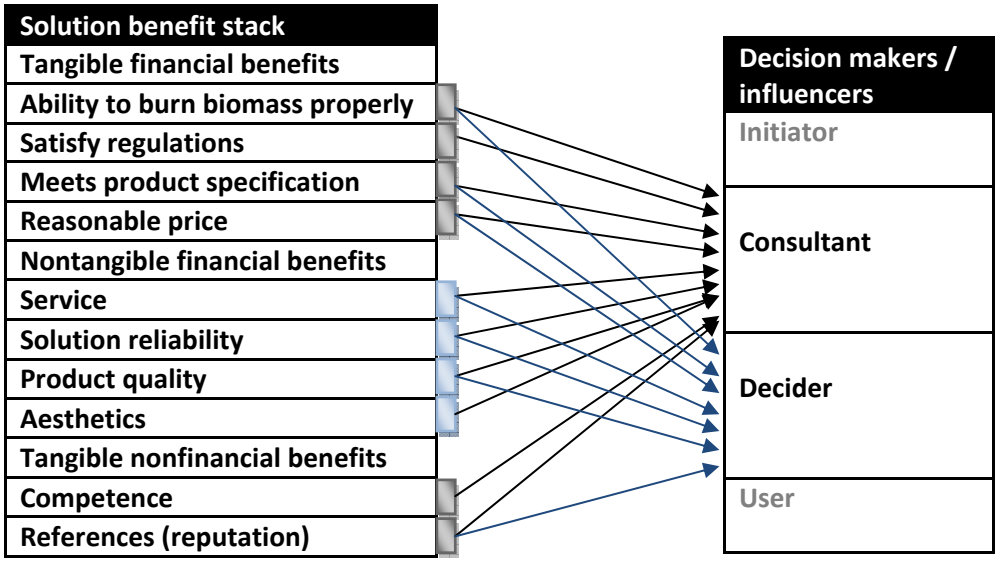


Figure 7.5: Benefits linked with decision makers

Comments:

It is difficult to argue which benefit is most important for each decision maker. Further research could determine which of the given attributes rate highest amongst each decision maker. Or, trained sellers can anticipate the situation and enact on the benefits most suited the individual. Research could also identify how initiators and users evaluate supplier attributes. It is likely that benefits related to the users and initiators considerations are of relevance in the given industry. For instance, the user is often a person who runs and maintains the heating plant. It is likely he or she perceive benefits related to ease of maintenance as relevant. As users and initiators are not classified as key decision makers in this case, such considerations will not be further elaborated on in this paper.

Implication for Agder Biocom

The implication for Agder Biocom's managers is to first organize its business so it is capable of delivering on benefits as suggested above. It relates to a value proposition it must deliver on each time if it wants to be perceived as a valid supplier. Further research could reveal the relative importance of each benefit for customers in a defined target market. Second, it should build arguments according to the benefit categories so their customers grasp the value of their offerings. Analysis conducted by Agder Biocom shows that the gasification technology has a range of possible benefits for the customer. The analysis is conducted from the lens of the company. While the claims may prove to be valid, the benefits do not seem to reflect the truly needs and wants of key decision makers in the industry. Instead of listing up a range of possible benefits, it is suggested to provide decision makers with arguments most likely to meet their needs and processes.

Chapter 4 portrayed how two common buying situations often seem to occur in the given industry, but stresses that each situation is unique and should be treated accordingly. Such finding seems to be consistent with the theory applied in this part, thus supporting the importance of adopting a bottom-up approach to branding. Research conducted in this paper also supports the claim that decision making processes in the given industry are driven by both rational and emotional criteria. Thus it supports the application of grouping benefits into both tangible and intangible categories. Based on this, it seems Narayandas theories apply well to the given industry.

7.5 Part 4 – The Brand Core and Branding Concepts

A sound B2B brand strategy should involve a balancing act of making a consistent impression throughout the organization. In strategy literature brands are often discussed as more tactics stemming from the corporate strategy. It is limited to a tool for communicating value already created by other processes in the company. Agder Biocom's managers should recognize the importance of the brand and consider it as one of the companies most valuable asserts. Hence, the brand strategy should be crafted as an integrated part of the corporate strategy. In order to become a brand-driven organization, all efforts should be rooted in what Kotler & Pfoertsch (2006 p.169) term the brand core. The brand core goes by many names such as brand essence, core brand promise or brand mantra. As Keller comments: *"A brand mantra is an articulation of the "heart and soul" of the brand, a short, three- to five-word phrase that captures the irrefutable essence or spirit of the brand positioning (2008 p.122)."* It is difficult to argue what should make up the brand core or brand mantra for Agder Biocom. This paper offers insights from the external environment it operates in and could provide managers with directions on how to define their brand core. Such considerations are beyond the scope of this assignment. It is highly recommended that managers of Agder Biocom adopt branding principles, take command of their own brand and complete the work of implementing a proper brand strategy.

Chapter 8 - Implications and Conclusion

It seems the selected theories and models explained the biomass heating plant industry in a way consistent with current knowledge about B2B markets. It supports to claim the industry should be threatened as a B2B context where general B2B branding theories should apply well. The explorative case study approach provided data on real-life context and should offer practical guidelines for Agder Biocom and its managers.

The paper also demonstrated the application of the means-end method in a new context. The application of means-end analysis identified several sources to brand equity in the given industry. By identifying sources to brand equity, it enhances the application of Keller's CBBE model in the industry. It is reasonable to assume that efforts done to create strong, favorable and unique associations should transform into loyal, active consumers towards a given brand in the biomass heating plant industry.

Another Perspective

Working with this paper offered interesting observations along the way. It could add perspective to the subject of study. As the paper seems to move towards corporate branding, it could be interesting to include theories from corporate communications. It could provide insights to corporate branding and whether green marketing initiatives could influence demand for biomass heating plants. Data collected in this paper concentrated on the 1-2 Mw segment in the biomass heating industry. A stakeholder analysis could further identify sources to brand equity in order to build a distinctive identity at a broader level in the marketplace. It would have several implications for Agder Biocom and its managers.

8.2 Conclusion

The paper set out to explore alternative energy markets in Norway in order to discuss how branding may provide companies with a sustainable competitive advantage. The thesis has been written with the purpose of solving the problem statement proposed in the initial phase of the project. It resulted in two major research questions with a range of sub questions.

The first major research question focused on the structure of alternative energy markets in Norway and led to the question: *How does branding principles apply to the biomass heating plant industry?*

The framework applied in this paper showed favorable trends on factors that influence future demand for bio-energy in the heat market. Within this market it seems the emerging biomass heating plant industry is attractive to compete in on long-term. Implications for branding were discussed in chapter 3 and 4. It has been argued several times the industry is structured as a B2B context and should be threaten as such. Compared with other energy sources, biomass heating plants incorporate additional risk as perceived by consumers in the 1 – 2 Mw segment. Given the high investment cost and a history with unserious offerings, it is likely a strong brand could become a trust mark for decision makers in the industry.

Analysis identified four roles that make up the buying center in most buying situations. Initiators, deciders (project leaders), consultants and users make the important decisions in the buying process of heating plants. Out of them, deciders and consultants seem to have most influence on decisions.

Means-end chain analysis in chapter 5 confirms that key decision makers seem to be driven by more rational and more emotional decision criteria. Different roles in the industry also seem to be driven by different deeper underlying needs, values and motivations. While the study indentified several sources to brand equity, it was not supported that green energy initiatives have major influence on important decisions in the industry.

In order to provide practical use of the knowledge gained in the first part, a case study led to the second major research question: *How should Agder Biocom position a B2B brand within the given industry?*

It seems main competitors have differentiated heating plant offerings in the industry in a number of ways. Competitor claim to be superior on similar supplier attributes where no strong B2B brand was identified. It raised the claim that it is an unexplored opportunity to build and manage brand equity in the industry.

Chapter 6 and 7 discussed how Agder Biocom should be perceived similar to a group of established members in the 1-2 Mw segment. It identified four possible considerations to build unique points-of-difference associations in order to set out from the competition.

Given the B2B context it was argued Agder Biocom should build a distinct brand identity in the market place. Analysis identified several functional and emotional B2B brand values relevant from the consumer perspective. Last, the paper acknowledged the need of balancing top-down and bottom-up branding activities in the industry. The basic product and service offering should be tailored to satisfy different members of the buying center in each unique buying situation. Research conducted in this paper does not provide sufficient arguments to make to final recommendations, but provide sufficient data in order Agder Biocom's mangers to craft and implement a proper brand strategy.

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Appendix 1 – Interviews with informants and respondents.

Informants

Name	Main findings
Jan Bjarne Wormli Sales manager, Agder Biocom	Technical insight to the gasification technology. Information about the market. Information about Agder Biocom and the Tratec Group. Each buy is unique. It is only in rare cases a straight re-buy occurs.
Christian Brennum CEO, SGP Biovarme	Few customers wish to be in contact with heating plants, thus the establishment of drifting companies. In the beginning companies offered both equipment and drifting, but it seems to be an opposite trend now. Around 2-3 Mw is dominated by foreign suppliers. The buying process depends on the situation. Often two common situations occur in the industry. In an immature industry, new entrants are seeking fortune and disrupt the competition. It leads to price competition. A lot of qualified foreign component suppliers. The industry seems to show a favorable trend. The political will is well supported. Insight to the competitive frame of reference.
Sigbjørn Bråtane CEO, Sveis og Montering AS	The company is known for its gas plants, but is now looking to establish its position in the biomass heating plant industry. Seems to be a trend for similar companies. The biomass industry attracts a lot of healthy investors. Foresters an important customer group. Technical insight to heating plants. Insight to the competitive frame of reference.
Siren Frigstad Head of technical department and project leader, Birkenes Kommune	Each project goes through several stages. Often a project and a control group guide the buying process. Important roles are initiators, consultants, project leaders and users. Initiators see environmental and economic benefits with bio-energy. Users focus on reliable plants, easy to operate and maintain. Electricity generates high drifting costs in hospitals and schools. Norwegian municipalities are looking for a green profile.
Tormod Gevelt Head of technical department and project leader, BioVarme AS	Each project goes through several stages. Often a project and a control group guide the buying process. Plumbers and drifters often part of the buying process. Important roles are initiators, consultants, project leaders and users. Initiators see environmental and economic benefits with bio-energy. Each major city in Norway is controlled by the biggest energy providers through convention. 1-2 Mw segment normally operates with free competition amongst suppliers. Investment costs are higher for bio-energy compared with oil and gas.

Rune Valla Director productions & operations and project leader, Hafslund	Each project goes through several stages. Often a project and a control group guide the buying process. Plumbers and drifters often part of the buying process. Important roles are initiators, consultants, project leaders and users. Bio-energy is a cost saving. The political will to support bio-energy is reflected in the general public. Low prices on oil and electricity directly influence bio-energy. The big energy providers will invest in bio-energy the coming years.
Lars Bugge Consultant, KanEnergi	Bio-energy has economic advantages over other energy carriers. Bio-energy has another risk profile compared with other energy carries. The heat market has several implications for branding. Insights to the market structure and risk for the customer. Each buy goes through several stages. Consultants have an important role. Consultants pre-qualify suppliers, but cannot make the final decision. Seleca and Doffin important tools for qualifying suppliers. Insight to the competitive frame of reference.
Rolf Hermansen Consultant, Cowi	Initiators see environmental and economic benefits with bio-energy. Technical insight to bio-energy and heating plants. Insights to biomass heating plants and different sizes in Mw. Currently bio-energy is the only realistic alternative energy source. Insights to the political landscape and future demand. Each buy goes through several stages. Total costs are most important; the cheapest offer is often rejected. Consultants have an important role. Consultants pre-qualify suppliers, but cannot make the final decision. Seleca and Doffin important tools for qualifying suppliers. Insight to the competitive frame of reference.
Christoffer Oustad Consultant, Nettkonsult	Political will influences Norwegian municipalities. Currently bio-energy is the only realistic alternative energy source. R&D environments could change the use of bio-energy. Insights to how electricity competes with bio-energy. Each buy goes through several stages. Consultants have an important role. Consultants pre-qualify suppliers, but cannot make the final decision. Seleca and Doffin important tools for qualifying suppliers. Insight to the competitive frame of reference.

Respondents

Due to the respondents' knowledge and experience in the industry, they are also used as informants in other parts of the paper.

Name	Position	Role given in this paper
Siren Frigstad	Head of technical department and project leader, Birkenes Kommune	Decider
Tormod Gevelt	Head of technical department and project leader, Bio Varme AS	Decider
Rune Valla	Director productions & operations and project leader, Hafslund	Decider
Lars Bugge	Consultant, KanEnergi	Consultant
Rolf Hermansen	Consultant, Cowi	Consultant
Christoffer Oustad	Consultant, Nettkonsult	Consultant

Appendix 2 - Interview guide for informants and respondents

People classified as informants answer part 1, while people classified as respondents answer both part 1 and part 2. The original interview guide is translated from Norwegian.

Part 1

Could you briefly tell me about your background?

How does bio-energy compete with other energy sources?

How do the general features of the biomass heating central?

How does the buying process occur in the given industry?

Who takes the initiative, and who makes the final decisions?

What is your role in the buying process?

What decisions do you influence or make?

Part 2

Think of a recent situation in which you participated in the buying process of a biomass heating central ranging 0.5 to 2 Mw.

What was your role in this process?

How did you separate suppliers from each other?

Think of the one supplier you recommended, why did you prefer the supplier?

Probe:

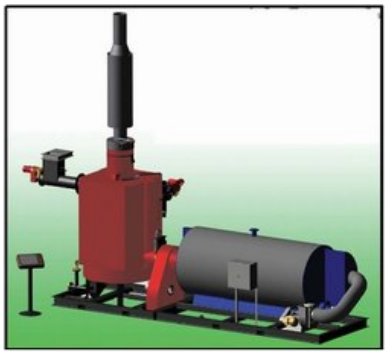
Why is that important to you?

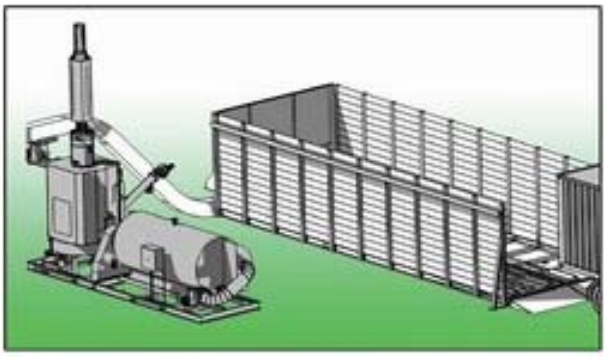
Think of a situation where you lacked [attribute, consequence], why would you miss it?

In your role, why do you regard [attribute, consequence] as important?

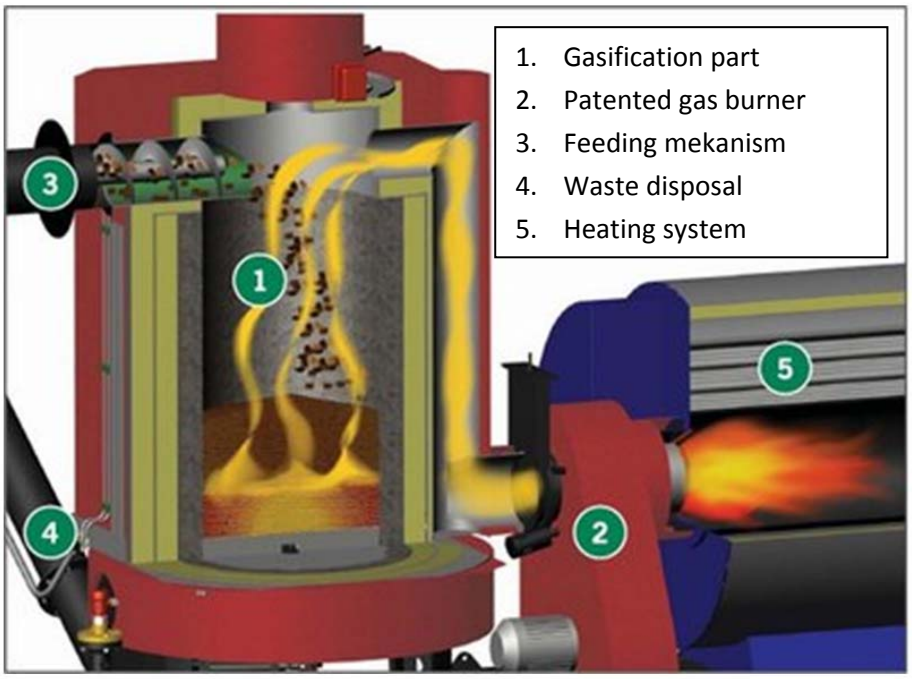
Appendix 3 – The product and the technology

The pictures underneath illustrate a typical biomass heating plant capable of producing 1 – 2 Mw. It is also shown with feeding mechanism and container for biomass handling.





The picture underneath demonstrate how the gasification module enhances the performance of biomass combustions.



Appendix 4 - Market segments according to Mw size

Biomass heating plants can be divided into four segments as illustrated in the figure below:

	0,5 – 1 Mw	1 – 2 Mw	2 – 5 Mw	5 – 10 Mw
				
Description	Standardized plants Low regulative	Flexible plants Tighter regulative	Flexible plants	Flexible plants Often needs special permit Highly regulative
Type of biomass	Wood pallets Wood briquettes 30–35 % moisture	Crushed wood Wood briquettes 35–40 % moisture	Crushed wood Waste Wood briquettes Straw → 50 % moisture	Crushed wood Waste Wood briquettes →60 % moisture
Typical customers	Municipalities Schools, hospitals, etc	Municipalities Energy companies Industry Dairy Gardeners *Nærvarmeanlegg*	Energy companies Industry	Energy companies Industry *Fjernvarmeanlegg*

Biomass and moisture

Biomass is classified according to its type and level of moisture. Biomass could be waste, wood pallets/briquettes or crushed wood. Moisture determines the technology needed in order to burn biomass properly.

Appendix 5 - DESTEP analysis

Data is collected from various public reports as listed in references. Analysis are based on qualitative data only.

F**avorable** trends in the **sociocultural** environment:

- Increased public environmental concern - every Norwegian municipality needs to develop a climate and environmental agenda by year 2010. It needs to address bio-energy. Also, bio-energy is a major issue on the political agenda of various parties.
- Increased energy consumption – Norwegian energy consumption has grown with 40 percent the latest 30 years and shows an increasing trend.
- Green energy marketing – green consumer segments show increased buying behavior.

F**avorable** trends in the **regulatory** environment:

- Kyoto agreement – international CO2 regulations and taxes on oil, gas and electricity.
- Increased national *environmental taxes* on oil, gas and electricity.
- *Enova* supports bio-energy investments with up to 30% through its heating programs.
- "Klimameldingen" offers reduced taxes for bio-energy initiatives.
- *Innovation Norway* and *Enova* offer extensive competence, funding and advisory for start-ups and experienced players in all stages of the supply chain of bio-energy.
- The Energy Law prescribes energy suppliers to inform municipalities about bio-energy possibilities.
- The Energy Law prescribes concessions for combustion solutions above 10MW.

Comment: The Government has a stated goal to increase current bio-energy production with 14 TWh (14000 MW). A major restructure work from oil, gas and electricity are in action to transform Norway into an alternative energy nation. Favorable initiatives affect both supplier and end user markets.

F**avorable** trends the **economic** environment

- Investor trends show willingness to invest in bio-energy. Estimates indicate 20 percent increase in investments the coming years.
- Higher prices are expected on competing energy sources as oil, gas and electricity.
- Governmental funding increases the buying power to Norwegian municipalities.

Comment: The recent economy crisis affects alternative energy industries in a global market place (whitepaper Frost & Sullivan 2009;2). Trends for the next couple of years show a

decreasing interest from investors to invest in alternative and renewable energy industries in Europe. This trend might also strike Norwegian investors and bio-energy investments.

F**avorable** trends the **environmental** environment:

- Oil and gas production show declining trends.
- Natural waterfalls for generating electricity are reaching its production limits.
- Bio-energy can help to maintain a cultural landscape.
- *Bioenergi i Norge* concludes that it is sufficient natural resources to meet the increased biomass combustion market need for raw materials.

Comment: Although higher prices are expected on oil, gas and electricity, it has in fact shown the opposite trend the latest year. Current low prices on oil and electricity offers a challenge for biomass combustion providers as consumers are influenced by price on substitute energy sources.

F**avorable** trends the **technological** environment:

- The Internet offers paper-free solutions. As such, reduced paper production has created a new business for farmers. Farmers used to send their timber waste to the paper industry, but are now converting to create small bio-energy companies.
- Current heating solutions fueled by oil, gas or electricity needs upgrading to bio-energy. Estimates show at least 17.000 oil combustions that can easily switch to biomass combustions.

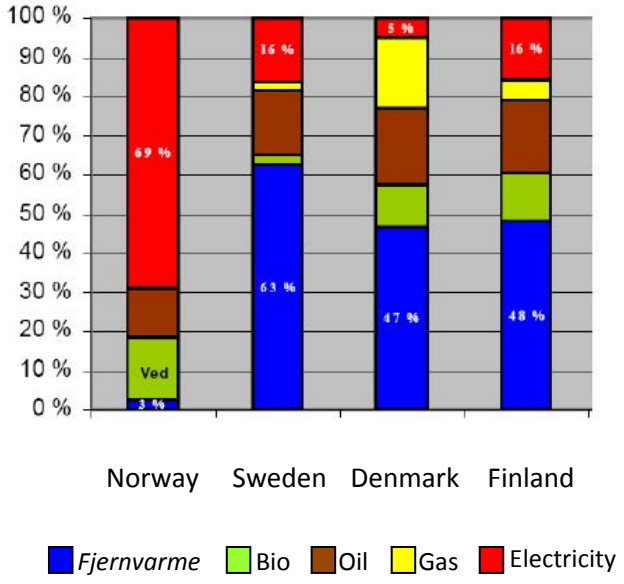
Appendix 6 - Competitors

An overview of the competitors dealing with biomass heating plants size 0,5 Mw to 10 Mw. Numbers are based on internal data presented by the Tratec Group according to 2007/8 observations.

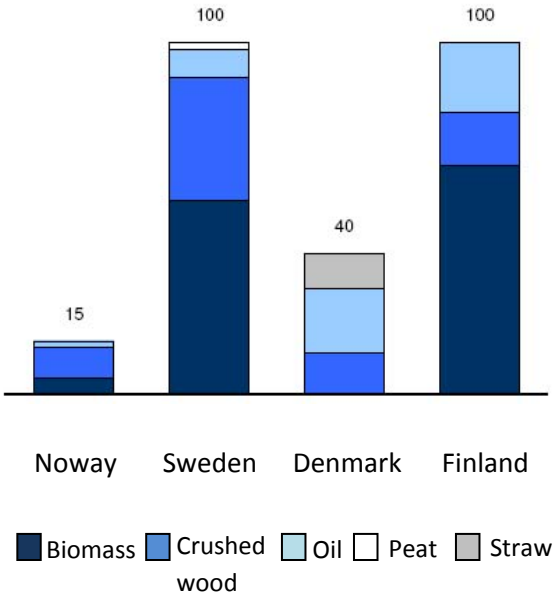
Name	**Market share**
TPS	11%
Weiss	10%
KMW Energi	9%
Enertech	7%
Köb	7%
Hotab	7%
Justsen	6%
Linka	6%
Järnforsen	3%
Eldab	3%
Veå	3%
Others such as Saxlund, KLM, Petrokraft, etc	29%

Appendix 7 - Energy for heat production according to the Nordic countries

Type of energy used for heat production



Bio-energy consumption 2007 (in Twh)



Appendix 8 – Context Factors in the Biomass Heating Plant Industry

Indicators (market with *BioCom*) are customized to fit the biomass heating plant industry. Data is collected from discussions in chapter 3 and 4, and ranked according to guidelines set by Kotler & Pfoertsch (2006).