

Fuel switching: Institutional factors of influence

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1. INTRODUCTION

The SAVE-project CADENCE focuses on ‘carbon dioxide from domestic equipment: end use efficiency and consumer education’. Within this project, one of the aims is ‘to establish the social, economic and technical constraints and opportunities for households to use gas more widely in the home. Gas fired appliances are due to direct conversion of gas (no electric infrastructure involved) far more energy-efficient than the common electric alternatives. The collected empirical evidence in this project can be used to identify policy options for fuel switching.

In this report some conclusions are made of the social constraints in the Netherlands for (domestic) fuel switching. In the market of electric and gas tumble dryers, an attempt is made to identify the institutional factors that influence the choice of households.

1.1 AIMS AND OBJECTIVES

The market development of domestic appliances is primarily influenced by consumer demands. As a result, the demand-characteristics for these appliances are very well known. Information of the size and recent changes in demand are available, the influence of social aspects as behaviour, lifestyles and demographics have been studied. Less studied is the effect of the culture, structure and organisation of the total sector on the demand for domestic appliances. Especially when it comes to the introduction of new themes (e.g. energy efficiency, waste policy), the total of institutionalised characteristics of a specific sector influence the speed of market-changes¹. Also, this collection of characteristics can be a major influence on the market introduction of totally new and non-standard products, such as the gas tumble dryer.

The aim of this study can be formulated as an identification of possible institutional factors that influence the policy of fuel switching. In the Netherlands the wet appliances (washing machine and hot water preparation) are the major options with fuel switching potential.² This study goes into possible factors that influence the position of gas tumble dryers on the Dutch market.

The central question for research is:

Which institutional factors influence the market-position of gas tumble dryers in the Netherlands.

To answer this question a theoretical framework is needed. In this report a combination is made of marketing-concepts and concepts related to science of public management. On the basis of the theoretical framework, the relevant sub-questions are:

1. What is the market-position of gas tumble dryers
2. What are the (non-standard) characteristics of gas tumble dryers
3. What is the organisational market-structure of tumble dryers
4. What is the structure of competition
5. What are the characteristics of the public policy
6. Which factors effect the market position of gas tumble dryers

¹ Management van de beleidsvorming, J.F.M. Koppenjan, VUGA, 1993.

² Washing Machines, Dryers and Dishwashers, GEA, 1995

1.2 STRUCTURE

This report contains the following chapters. First the theoretical framework used for research will be discussed. The second chapter describes the product gas tumble dryers. The third chapter focuses on the characteristics of the private side of the market, followed by a chapter where the policy of the national government will be discussed. In the fifth and last chapter, conclusions about the influence of institutional factor are formulated and some recommendations are made for policy-improvements on fuel switching in the Netherlands.

1.3 RESEARCH METHODS

A combination is made of desk- and field research. Existing studies are used and interviews are held with representatives of several different companies.

2. THEORETICAL FRAMEWORK

2.1 INTRODUCTION

'Fuel switching' is the central element in this study. It's a direct and effective measure to reduce the negative effects of the fast rising domestic energy use. Gas fires appliances prevent unnecessary conversion of gas to electricity. This means a CO₂ reduction of at least 40%. This is why research of the threats and opportunities for a supporting policy on fuel switching, from a societal point of view, is very important. The study of the threats and opportunities for a supporting policy on fuel switching is in this report translated to a study of the market-position of gas tumble dryers. The Dutch market for tumble dryers is as a result of the wet weather conditions relatively large. The market penetration is about 50% and is still growing.

The institutional factors are the central elements. Where it comes to the introduction of new products, the assumption is that these factors play an important role. Present organisational structures, political positions, economic interests and specific perceptions are conservative but steering elements in a market.³

2.2 CONCEPTS OF RESEARCH

The formulated central question was:

Which institutional factors influence the market-position of gas tumble dryers in the Netherland.

This question has different concepts. The following definitions will be used:

Institutional: The grown structure and culture of the market for gas tumble dryers. For the structure the organisational structure and the structure of competition will be studied.

Factors: All variables that can influence the market position of gas tumble dryers directly or indirectly

Influence: If there is reason to expect that the market-position will change along with the changing of a factor, there is influence.

Market-position: The relation between the secondary demand (for gas tumble dryers) and the primary demand (for tumble dryers).

With a description of the concepts the basis of the theoretical framework is created. Along with the formulated sub-questions in the first chapter, the theory will be discussed in detail.

³ ISBW, NIMA B, Analyse: basis voor strategisch marktplanning', 1998.

1. *What is the market position of gas tumble dryers (chapter 3)*
This is the starting point of our research. The market position is the relation between the demand for a certain brand and the total demand for products in the defined market.
2. *What are the (non-standard) characteristics of gas tumble dryers (chapter 3)*
The nature of the product effects the organisation of distribution and sale. For example, there is a huge difference in the distribution of automobiles and the distribution of car-radio's. To identify possible demands on the organisation of distribution and sale, the product 'gas tumble dryer' has to be examined more closely.
3. *What is the market-structure of tumble dryers (chapter 4)*
The next step is to identify and to describe the market-structure for gas tumble dryers, with all possible dimensions. Our definition of market-structure is the chain of persons and relations involved with the production, distribution and consumption of products and services.
4. *What is the structure of competition (chapter 5)*
To identify the nature and culture of the market, the theory of the five forces of competition of Porter will (to some extent) be used. With this tool it's possible to estimate the attractiveness of a market. The theory of Porter focuses on:
 - The status of the competition at present (number of organisations, mental relations with the market, differentiation of products, market phase).
 - Barriers to entry
 - Possibility of new substitutes
 - Influence of consumers (backward integration, consumerism).
 - Influence of producers.
5. *What are the characteristics of the public policy (chapter 6)*
In many ways public authorities are able to effect the private market. They can create 'barriers to entry' like prescriptions, they can also fulfill a more stimulating role. A well known instrument is 'technology procurement'. With this instrument public authorities can support the development of new technical solutions in order to meet the requirements of the buyer. In this study we look at:
 - Which public authorities effect the market for (gas) tumble dryers.
 - The perception of the problem and the used policy-instruments
 - The structure of negotiation between public and private parties
 - The culture of the policy field
 - Links with related policy fields
 - The role of the political cycle and the societal climate

6. Which factors effect the market position of gas tumble dryers (chapter 7)

By comparing the collected information, it's possible (to some extent) to draw conclusions of possible effects of the institutional characters on the market-position of gas tumble dryers.

Figure 1 shows a graphic presentation of the theoretical framework:

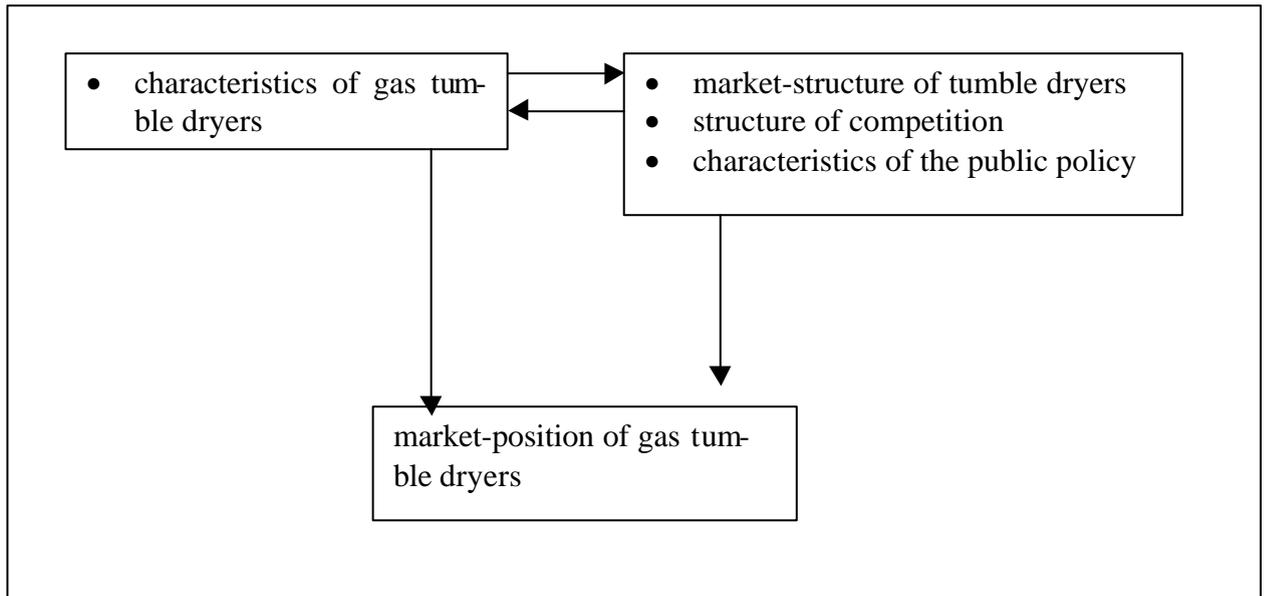


Figure 1: theoretical framework

The research methods used are desk-research and field-research.

3. THE (MARKET POSITION OF THE) GAS TUMBLE DRYER

3.1 INTRODUCTION

In this chapter the characteristics and the present market-position of the gas tumble dryer in the Netherlands are described. Herefore, company-information and existing study-reports are used.

3.2 THE GAS TUMBLE DRYER

The working system of the gas tumble dryer is very similar to the system of the air-vented dryer. The main difference is, logically, the use of a gas-burner in stead of a heating element to heat the airflow. De combustion gasses are transported via a small pipe that's located in the roof or front of the building. The consequences of the use of a gas tumble dryer is:

- The presence of a gas connection. The Netherlands is very well equipped; a dense natural gas transport and distribution network is available. About 96% of the houses are connected. The remarks are that the number of connections to a district heating infrastructure is rising. As a consequence a growing number of recently build houses have no gas connection. Also, the existing gas connections in Dutch houses aren't often suitable for the installation of gas tumble dryers.
- An exhaust pipe is necessary. This means often small adaptations to the houses. Compared to the condenser dryer this is a disadvantage.

The share of saved primary energy is about 45% compared to the electric dryers (Berkel and Jacobs, 1998). Moreover, the gas tumble dryer is significant faster than the electric competitor (about 40%). This explains the popularity of gas fired drying machines in the professional Dutch laundrettes.

The price of the gas tumble dryers is substantially higher than a conventional dryer (purchase price varies between 500 and 1000 Euro).

Besides the mentioned installation demands, the disadvantage of some gas tumble dryers is the higher level of sound (GGR, 1999).

Gas tumble dryers distributed in the Netherlands are the same size as the electrical dryers. They weight about 20% more (Product-information Miele).

Gas tumble dryers do not demand extra skills for operation. Some products are even more easy to operate.

3.3 THE MARKET POSITION

Because of the non-standard characteristics of gas tumble dryers, the question has to be made whether the market for gas tumble dryers is a separate, isolated market with a different dynamic and structure. How reasonable is a comparison of the market position of gas fired dryers with the electrical dryers? This question can be answered by looking from the consumer's point of view. If (similar) products are conceived as substitutes by the consumer, the products belong to one, singular market (ISBW, 1998). For this reason, there will be no market-separation in this study. The products in the market for domestic dryers are:

1. Air-vented tumble dryer
(air heated with electrical heating element; moist air must be transported outdoors)

2. Condenser tumble dryer
(air heated with electrical heating element; moist air condenses with the help of a coolingplate)
3. Gas tumble dryer
(like air-vented dryer; the electrical heating element is replaced by a gasburner)
4. Heat pump dryer
(like condenser dryer; the electrical heating element is replaced by a heat pump)

Approximately 250.000 dryers are sold every year. The market-share of the condenser dryer is about 60%, the air-vented dryers nearly 40% (TNO, 1999). Producers have pointed out that the market-share of the condenser dryer is still rising. The reason is the flexibility of the product; an exhaust pipe is not necessary. The present market share of the gas tumble dryers is very small in the Netherlands. The sale of 3000 products since the introduction of the product in 1993 means that the market-share is near zero: 0.14% (Albers, 1999).⁴

3.4 CONCLUSION

The functioning and 'presentation' of gas tumble dryers is very similar to the electrical dryers. The main advantages are the speed and energy efficiency. The main disadvantage is the installation and the substantial higher purchase price. The market position of the gas tumble dryers is clearly very weak at present.

⁴ Marketshare: secondary demand/ primary demand x 100%
Primary demand (general demand for product-group) = 360.000
Secondary demand (demand for specific mark within the product-group) = 500

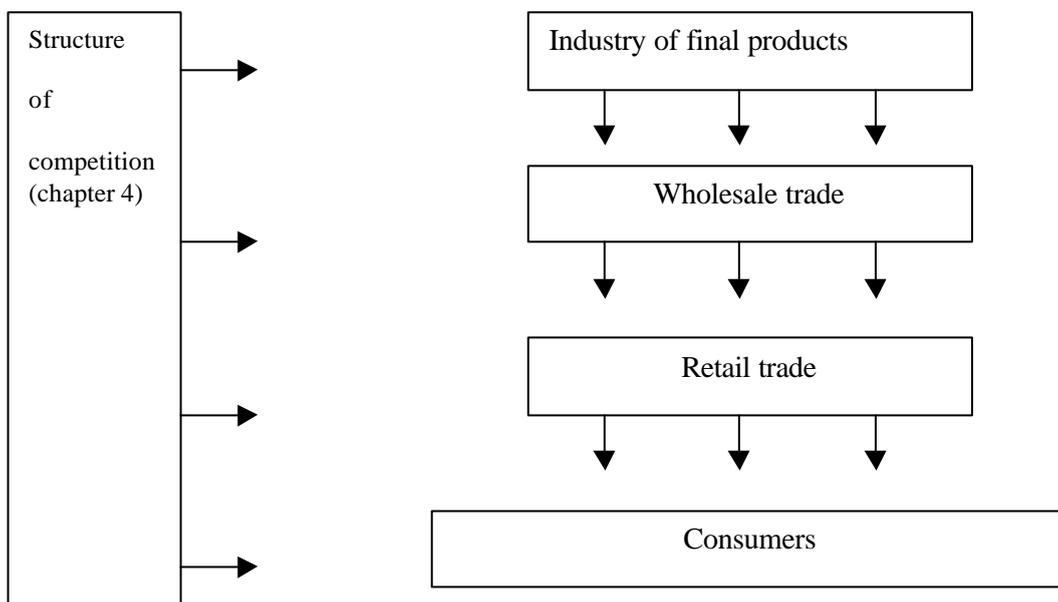
4. MARKET STRUCTURE

4.1 INTRODUCTION

In this chapter the structure of the market for tumble dryers will be studied. The assumption is that grown and institutionalised market structures influence the market position of products. For the analysis of the market structure and the belonging characteristics, a part of the industrial column will be studied. The industrial column can be defined as the chain of persons and relations involved with the production, distribution and consumption of products and services (ISBW, 1998). Within the industrial column the industrial firms which are responsible for the raw materials and semi-finished will not be examined. A full analysis of the industrial column is very time consuming and the market position is less under the influence of the characteristics of this part of the industrial column (less consumer oriented). The research tools are desk- and fieldresearch.

4.2 THE INDUSTRIAL COLUMN

This study focuses on the (plain) structure of the industrial column that starts with the industry of final products, the tumble dryers, and ends with the consumers. Figure gives a simple impression of the industrial column:



4.3 THE MARKET STRUCTURE OF TUMBLE DRYERS IN THE NETHERLANDS

It seems that the market for tumble dryers in the Netherlands has a rather simple market structure consisting of the elements:

- (foreign) producers
- importers
- the wholesale trade
- the retail trade
- the consumer.

On further consideration, within this main structure there are different configurations. Also, as we will see, the product gas tumble dryer adds another link to the industrial column; the installer. The central question is which influence this structure possibly can have.

4.3.1 Producers

As with other Western European countries, there are different marks of tumble dryers in the Netherlands, made by different kinds of international producers. Annex 1 gives the 9 largest producers in Western Europe. In the Netherlands there are a limited number of gas dryer-producers (Hiddokk, Miele, Huebsch, White Knight).

4.3.2 Importers

Almost every producer has its own importer. The importers in the Netherlands are a very important source of national market knowledge for the (foreign) producers. The national product prices and marketing campaign are the points of discussion between the producers and the importers.

4.3.3 Distribution: wholesale and retail trade

In the Netherlands there are different kinds of distribution channels.

4.3.3.1 Chain stores

The most important distribution channel in the Netherlands is the combined wholesale and retail or chain stores. In the Netherlands they have a market share of about 50% and is still growing (EIM, 2000).⁵ Some of the chain stores have a national coverage (Megapool, BCC).

4.3.3.2 Purchase combinations

Beside the chain stores there are purchase combinations. Independent retailers cooperate for marketing purposes. The assortment is for 70% alike for all retailers (the 'heart assortment'). For the remaining part the retailers decide which 'special' products to sell. Retailers joining purchase combinations don't sell gas tumble dryer, but they are mostly willing and prepared to order and deliver a gas tumble dryer. Examples of purchase combinations in the Netherlands are Expert and United Retail.

⁵ Estimations for 1999, Economic Institute for Small and medium-sized businesses, 2000.

4.3.3.3 *Small distribution*

The chain stores and the purchase combinations are responsible for about 80% of the selling of domestic appliances (EIM, 2000).⁶ The remaining 20% is distributed via different smaller channels.

1. Distribution via importers to a wholesale dealer, specialised in delivering within 24 hours; They work for independent retailers and in some cases purchase combinations with little storage capacity.
2. Importers delivering to larger independent retailers; according to the chain stores in the Netherlands there will always remain a certain market share for the independent retailers; in smaller municipalities they have a strong relationships with the inhabitants.
3. Importers delivering mail order firms: In the Netherlands their market share is decreasing.
4. Importers delivering to lease-organisations: by cause of the increased wealth the market share of lease-organisations is under pressure.
5. Importers delivering to utilities: utilities who want to attend their customers to the utility policy and services of energy-efficiency, sometimes sell solar heat systems and gas tumble dryer. They sometimes have special showrooms. Utilities are able to offer lease constructions.
6. The importer of Electrolux expects that the distribution channel internet will grow strongly in importance. According to Electrolux in the near future a significant share of electrical domestic appliances will be sold by internet. Electrolux wouldn't mention their activities on this field in detail. According to Electrolux, very few tumble dryers are sold by internet so far.⁷

4.3.4 **Installation**

In most of the cases, the transportation and installation of *electric* tumble dryers (and other 'wet applications') is a service of the selling actor. Chain stores have their own transportation services, smaller retailers hire specialised transportation companies. The installation of the electrical tumble dryers doesn't demand special expertise; transporters are also installers.

As we have already seen, in case of the gas tumble dryer it's different. The installation of this product often demands an extra gas connection and sometimes adaptations to the building (chapter 2). The industrial column of the gas tumble dryer has therefore an extra link.

Striking is the fact that none of the persons spoken with, knew chain stores or purchase combinations where transporters were able to install gas appliances. Megapool does sell and deliver electric 'american' refrigerator with non-standard proportions and specific installation prescriptions because of the discharge of melt water. The consumer is responsible for the correct installation. Herefore the consumer receives with the purchase of an 'american refrigerator a 'buying contract' with recommendations for installation, and in some cases references to installation local companies.

Existing distribution channels for the gas tumble dryer are:

1. Purchase combinations: specialists with a gas tumble dryer in their assortment.

⁶ Estimations for 1999, Economic Institute for Small and medium-sized businesses, 2000.

⁷ There's a Dutch website called 'Internetshop-wet appliances'

2. Utilities: the (small) gas company GGR in the city of Tiel for example succeeded in the selling and installation of 300 gas tumble dryer in their region. They used an 'action' formula, where the installation and the purchase of subsidies was organised.⁸ The consumer buys a product alike the electrical tumble dryer. Although there are general agreed environmental goals between utilities and the national government, the action of GGR must be seen as a pure commercial project within their own business interest.
3. Installers: in the Netherlands there are a few examples of installers who sell and install the gas tumble dryer themselves.

⁸ The subsidy is in the first stage financed by GGR; on this moment it is replaced by the national subsidy (same prices) of the ministry of Economic Affairs.

Figuur 2 shows the structure of the market for gas tumble dryer in the Netherlands. The mentioning of the installer refers to distribution channels for the gas tumble dryer.

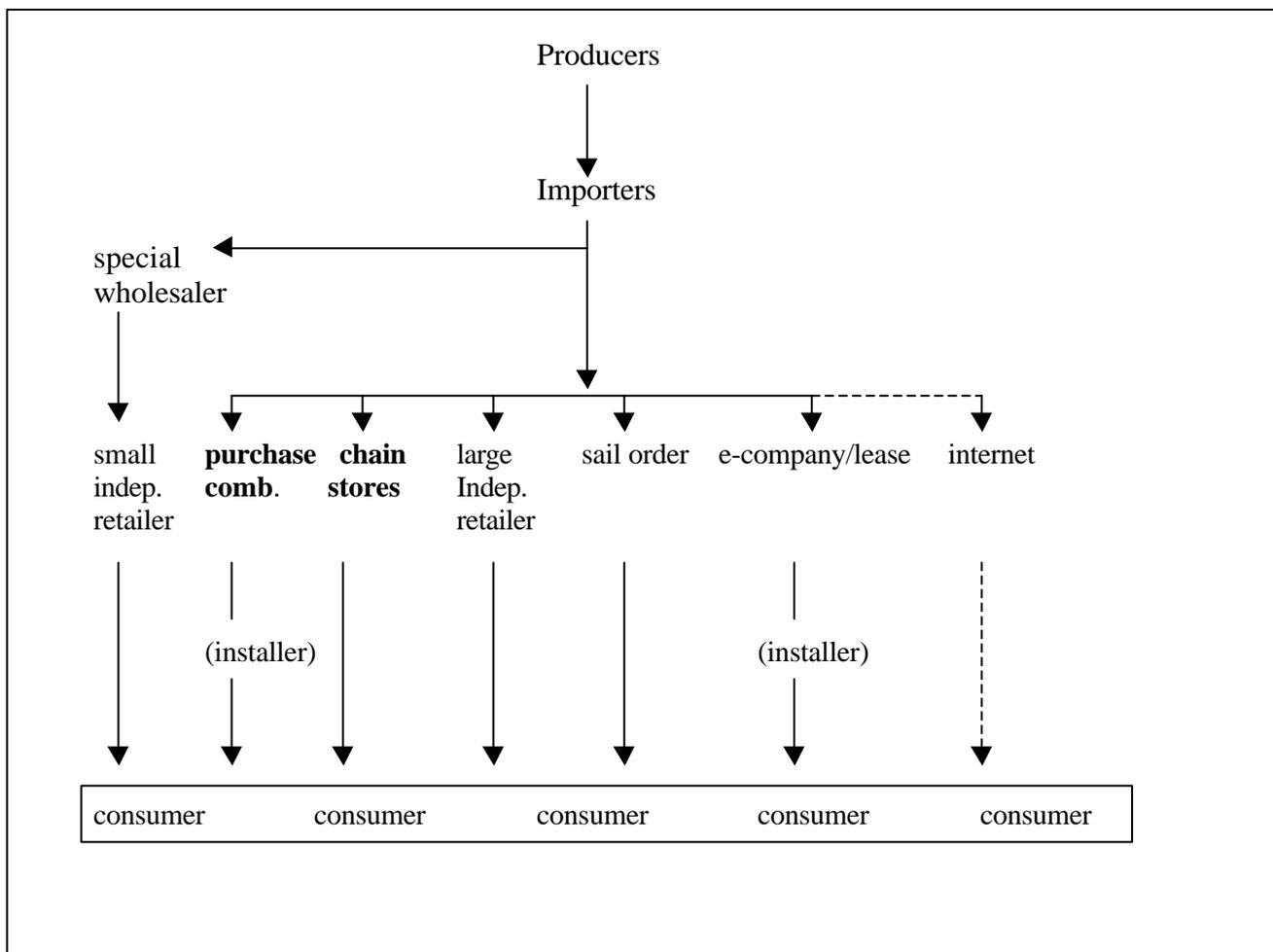


Figure 2: Market structure for tumble dryers in the Netherlands

4.4 CONCLUSION

In the interviews the possible influence of the market structure of (gas) tumble dryers on the market position of the gas tumble dryer has been discussed. The main conclusions are:

1. It's very clear that the gas tumble dryer isn't distributed by the most important channel in the Netherlands; the chain stores. According to most of the interviewed persons this means that the majority of the potential customers will not be informed of the existence of the gas tumble dryer. The other main distribution channel, the purchase combinations, doesn't guarantee information about the gas tumble dryer either. As one of the persons interviewed said: 'Consumers have to be very persistent to obtain information about the gas tumble dryers'.

2.

It can be wondered what the influence is of the concentrated organisation of the chain stores: wholesale and retail trade is centrally co-ordinated. As a result managers of the retail firms have very little influence on the composition of the assortment. This kind of organisation isn't conducive to the flexibility and diversity of assortments in the large number of chain stores. This can be a disadvantage to the introduction of new products as the gas tumble dryer. This assumption is denied by the chain stores.

3.

A third (well known) conclusion is the fact that the selling and installation of gas tumble dryer isn't 'naturally' co-ordinated by one of the market actors. In most cases the installation has to be organised by the consumer. This means extra effort and extra uncertainty of another business transaction.

The special project of the utility company GGR in Tiel doesn't point out the exact extent of the influence of this factor. Besides the organisation of the installation and subsidies, the project also included extra publicity and the offer of a lease-construction. The opinion of the utility company is that the positive contribution of the 'organised installation' is significant.

This is also the opinion of COOPRA; the Dutch importer and distributor of a gas tumble dryer believes strongly in the positive influence of the presence of 'gas stores' (selling and installation of gas fired applications). COOPRA thinks that the grown market structure is a major barrier for the introduction of the gas tumble dryer. The solution is according to COOPRA the organisation of a completely new distribution channel, where installers exploit more selling activities.

5. STRUCTURE OF COMPETITION

5.1 INTRODUCTION

The previous chapter dealt with the structure of the market for tumble dryers. In this chapter the context and culture of the market for tumble dryers will be studied in order to understand the status quo of the structure and the organisations within the market.

Also, the changeability of the market structure will be explored. Herefor, the theory of the five forces of competition of Porter is used (Porter, 1980). The theory of Porter focuses on:

- The competition at present: this depends on the number of organisations, the existing mental relations of firms with the market, differentiation of products and the market phase.
- Possible barriers to entry: for example the need for high initial investments or government regulations.
- Possibility of new substitutes: what is the chance of the presence of new products.
- Influence of consumers: what's the chance of backward integration (installation companies selling gas tumble dryers), what's the influence of consumers-organisations.
- Influence of producers: in case of a small number of producers, there is a possibility of higher prices than economically necessary (abuse of power).

Mainly field-research has been used.

5.2 FINDINGS

5.2.1 Status of the competition

The Dutch consumers' market for tumble dryers comprises nearly 3.5 million tumble dryers. Every year proximately 250.000 tumble dryers are sold (TNO, 1999). Logically, the persons interviewed call the market for tumble dryers a 'substitute market'. The rate of market penetration is very high and will grow just slightly every next year. The smaller independent retailers often have a strong bond with the local market. As expected, a minimal number of independent retailers will always be present.

Looking at the different channels of the distributions, a growing market share of the chain stores is detrimental to the market share of the independent retailers⁹. The market share of Dutch chain stores is valued at 50%.¹⁰ In the Netherlands three chain stores are in the running for market leadership: Megapool, BCC and Kings Fisher. BCC and KingsFisher are recently merged. This new co-operation aims at national coverage and the enlargement of their market share.

None of the chain stores sells the gas tumble dryer. Chain stores argue that they aren't able to sell, deliver and install the tumble dryers at the same costs as the electrical tumble dryers. The installation diminishes the profit per product. Chain stores often have to compensate low margins with quick returns¹¹.

⁹ Marketshare independent enterprised declined from 38 to 11% in 1998.

¹⁰ Estimations for 1999, Economic Institute for Small and medium-sized businesses, 2000.

¹¹ Average profit margins: 5,2%: Annual report 1998, Union for Electrotechnical Enterprises

Another argument is that the absence of a wide variety of gas fired dryers of well known marks. Chain stores prefer to offer consumers more than one mark. Because chain stores sell mainly electrical wet appliances, the opinion often heard is that chain stores are experts in 'selling boxes'.

Although two producers (Electrolux, Miele) have presented an energy-efficient tumble dryer, product differentiation is not a very important issue. A main reason for the production of the efficient alternatives is image building. Miele expects very much of the positive effects to the image of Miele. Miele doesn't expect high sales. According to the marketing-budget, the product doesn't receive high priority within the organisation.

In case of Electrolux the tumble dryer with heat pump is a result of their 'Total Quality Management'; Electrolux strives at environment friendly production and products. Electrolux developed the tumble dryer with heat pump instead of the gas tumble dryers because of three marketing reasons:

- The product had to be world wide applicable (this in favour of electric products)
- The product had to be flexible (this is in favour of the condense dryer)
- Usability (the higher price must give quality in return).

The high speed of the gas tumble dryers is according to Electrolux not a selling issue: speed can be translated as 'not dry'. Like Miele, the heat pump tumble dryer doesn't receive (yet) high priority within Electrolux.

5.2.2 Barriers to entry

The number of producers for the Dutch market for tumble dryers is stable. This also holds for the producers of gas tumble dryer. In The Netherlands there are four important suppliers of gas tumble dryer:

- Coopra Consumer products: supplier of the White Knight
- Huebsch (mainly products for the professional market)
- Miele
- Hiddokk (also supplier of White Knight)

Mentioned reasons for the stability of the number and producers are the importance of a well known mark with a good quality reputation and the high investments for product development. Electrolux claims a 15 years development program for the heat pump dryer. Remarkable is the fact that the oncoming government subsidy program (1/1/2000) for A-rated domestic electric appliances has resulted in a large offer of A-rated refrigerators in a very short term, but not for tumble dryers. Of all the large producers, only Electrolux (AEG) has the electrical heat-pump A-rated dryer.

There are some (European) government regulations for electrical and gas fired tumble dryers.¹² The testing of new introduced gas tumble dryers costs about 12.500 ECU. In case of the gas tumble dryer, actors didn't mention these regulations and these costs as a difficult barrier. On the other hand, actors pointed out the importance of the common European dimensions. The introduction of tumble dryers with non-standard dimen-

¹² European standards for electrical tumble dryers:

- EN60335-1
- EN60335-1

There are, besides the garage, no restrictions for the positioning of the gas tumble dryer.

sions (some American products) is very difficult. These products will not fit in to the Dutch houses which are designed with standard 'mats': a measure for domestic 'wet' appliances and furniture.

A disadvantage for (producers of) the gas tumble dryer is the increasing popularity of the condense dryer. As mentioned before, the marketing reasons of the producer Electrolux for not producing the gas tumble dryer are well considered.

5.2.3 Possibility of new substitutes:

There are washer-dryers available, applications suitable for washing and drying as well. No trend was mentioned in favour of these applications.

5.2.4 Influence of consumers:

Installers

Important are the intentions of the Dutch installers to not only install but also to sell the gas tumble dryer. The interviews made clear that the chance of selling and marketing activities for the gas tumble dryer of the installers is very small, because:

- Installers are originally local oriented artisans. Marketing and sales doesn't fit in their culture.
- Installers don't like single works: they aim as much as possible at project-oriented work. The small sale of gas tumble dryers is a disadvantage.
- Because installers aren't familiar with the gas tumble dryer, they are anxious of a lot of extra maintenance. In case of new and unfamiliar applications, installers prefer to buy off the maintenance. In some regions there are specialised co operations for the 24 hours maintenance service where installers can buy off the maintenance.

Consumers

The unfamiliarity of the product and the fear of disturbances is at daggers drawn with the increasing 'claim-culture' in the Netherlands. Almost all persons mentioned and confirmed the increasing exactingness of Dutch customers. As a result Megapool has created a judicial department for customers affairs. Installers replace more often whole applications in stead of repairing or the replacement of parts.

5.2.5 Influence of producers

On the West European market of domestic appliances there are 10 major producers, who also dominate the market for tumble dryers (see also appendix...). Although Electrolux took over AEG recently, a relative stable number of (the same) producers was mentioned. According to the persons interviewed, the producers of tumble dryers influence the market the most. An important example is the rise of 'international account management'; because of marketing reasons, every producer will deliver only a restricted number of marks and types per country in the near future. Only when the demand of distributors is high enough, they are able to influence the number or form of the products delivered. This phenomenon is also brought forward as the main cause for the concentration among the chain stores in the Netherlands

De producers in the Netherlands are well organised via the branch organisation VLEHAN. The VLEHAN is an important discussion partner of the ministry of Economic Affairs and the ministry of Environment.

5.2.6 Other influences

Striking is the mentioned subject of the role of utilities. Same as in the industry of telecommunication, the actors expect an increasing influence of utilities on the price level of tumble dryers. Forms of sponsoring of domestic appliances are future possibilities. It's also possible that as a result of agreements between building companies and utilities a growing number of new houses will be sold with certain electric or gas fired appliances. This is already common in a.o. Scandinavian countries.

5.3 CONCLUDING REMARKS

Above descriptions give an impression of the structure of competition in the market for tumble dryers. De question again is to what extent this structure influences the market position of gas tumble dryers.

Because the gas tumble dryers are hardly represented in the Netherlands, possible barriers to entry are important. One conclusion is that although there are no huge *technical* barriers to entry, the introduction of gas tumble dryers in The Netherlands isn't quite easy, because;

- There is a modest number of producers who have together a very large market share. The number of (large) producers is stable. In The Netherlands the producers are well organised. These facts assume that it's difficult for new producers (with new products) to create a certain significant position on this market.
- Among the large producers, *only* Miele produces a gas tumble dryers. The gas tumble dryer isn't given a high priority by Miele. Electrolux, the market leader, chose the production of the heat pump dryer in stead of the gas tumble dryers because of marketing reasons. This assumes that the chance of product differentiation of the *large* producers in favour of the gas tumble dryers cannot be expected on the short term.
- As a result of the oncoming international account management of producers, we see an increasing concentration among distributors. The expectation is a further increase of the market share of chain stores. For the producers of gas tumble dryers, the importance of this distribution channel will grow. Gas tumble dryers are hardly sold by the chain stores at the moment; these products are economically irrelevant for this distributor.
- Because of increasing exactingness of consumers, new non-standard products aren't popular by installers. Also, Dutch installers are not intended to sell the gas tumble dryers themselves.

6. PUBLIC AUTHORITIES

6.1 INTRODUCTION

The market development of products can be strongly influenced by public authorities. For example, financial support and legislation are two well known instruments often used by governments. In this chapter, an attempt is made to give an overview of the organisational form and character of the Dutch public policy on tumble dryers.

6.2 ORGANISATION

In the Netherlands public activities for CO₂- emission and environmental issues are increasingly integrated in all the different specific policy fields. Defined as 'external integration', every ministry has specific responsibilities for reaching the general public targets for energy efficiency and environment. The total coordination is in hands of two ministries: the Ministry of Housing, Spatial Planning and the Environment and the ministry of Economic Affairs. The Ministry of Economic Affairs is the first Ministry to talk about RE and energy efficiency. Issues of energy efficiency strongly connected to the building sector are dealt within a special 'inter- ministerial department called PEGO. The topic domestic appliances is however a full responsibility for the Ministry of Economic Affairs. The topic domestic appliances is not on the agenda of PEGO.

The Ministry of Economic Affairs has a number of departments, under which the department for energy. Within this department there is the agency for energy efficiency and renewable energy. The organisational structure of this agency is thematical, according to different target groups. As a result of the liberalisation of the energy market, the department for energy will soon be reorganised. The department will be subdivided into agencies for energy production, energy market and energy consumption. The important target of the 'external integration' of energy efficiency and renewable energy (defined as Action Program Energy Saving) remains.

De R&D programs and subsidy programs for energy efficiency and renewable energy are carried out by a specialised executive agency, the Novem (Dutch agency for energy and environment). Novem has also a department working on (installed) appliances.

6.3 PERCEPTION

Energy efficient domestic appliances will be subsidised from the first November 1999, as a result of the public Energy Contribution regulation (Energiepremieregeling). The budget is over a 100 million ECU for A-label appliances and efficiency measures in building (e.g. isolation measures). The allowances for applications are:

- 50 ecu for A-label appliances;
- 175 ecu for A-label tumble dryers;
- 175 ecu for gas tumble dryer;

The 100 million ECU is obtained via the new energy-taxes (REB) in the Netherlands. The utilities are responsible for the implementation. Because of a delay of the start of the Energy Efficiency Arrangement, some utilities have already started with the sub-

sidy programs alike the Energy Efficiency Arrangement. These are financed by the (private) utility-funds for energy saving.

According to the ministry of Economic Affairs, the causes for the small market share of the gas tumble dryers are:

- the high price
- the needed installation
- the unfamiliarity of the gas tumble dryer

It's because of this perception, Novem started a discussion panel where an inventory is made of the problems around the introduction of the gas tumble dryers. For this moment, the ministry recognises the complexity of the market problems of the gas tumble dryer, but remains with the financial instrument.

The subsidy is according to the ministry meant for households who already have intentions to buy a gas tumble dryer. The ministry acknowledges that the subsidy won't contribute firmly to a better market position for the gas tumble dryer.

The ministry expects some results though from actions initiated by the utilities, who will support the implementation of the Energy Contribution regulation with regional publicity.

Besides the financial instruments, the possibility of new regulations is discussed with the ministry. The ministry however has no intentions on this field. All possible judicial guidelines are developed on European level, such as the well known energy labelling. Since September 1999 there are the minimal efficiency demands for refrigerators and freezers. Products with a D, E, F and G rate are prohibited. This is an example of the second phase of the European policy for minimal efficiency demands.

6.4 PUBLIC-PRIVATE RELATIONS

On the field of energy efficient appliances, there is regular dialogue between Novem and the branch organisation for producers (VLEHAN). Issues with high priority at the moment are the waste contributions for domestic appliances, the Energy Contribution regulation and the fast growing energy demand of households. A lasting point of discussion is the friction between the demanded quality from consumers and the increasing demands from authorities on energy efficiency.

6.5 CONCLUDING REMARKS

The impression is that the Ministry of Economic Affairs is fully aware of the complexity of the problem. They have a realistic view on the problems concerning the introduction of the gas tumble dryers. The ministry has taken initiatives to refine the problem.

The reality is that the chosen policy instrument, the Energy Contribution regulation, won't solve certain fundamental problems (installation, unfamiliarity of the product). The ministry acknowledges this and resigns to this situation. Legislation is no option, because this is primary a matter of European policy.

Striking is that the issue of gas tumble dryers is not on the agenda of the interministerial project agency responsible for energy efficiency in the building sector. An extensive dialogue with and clear policy for building companies could simplify the problem of installation (e.g. standard gas connections in new houses).

The ministry expects results of specific actions of utilities. The ministry acknowledges the importance of the co-operation of the chain stores, but has no solution for opening this distribution channel in favour of the gas tumble dryer yet.

7. CONCLUSIONS AND RECOMMENDATIONS

The product gas tumble dryers is in for most Dutch people a rather new and unfamiliar product. Unique selling points are the energy efficiency and the speed of washing. The main disadvantages are the higher purchasing costs and the necessarily mediation of an installer. Besides these product-related issues, for this study the assumption is made that institutional factors can influence the market position of products. There is possibility that grown structures in the market prevent the (fast) introduction of new products. Therefore we formulated the central question as:

Which institutional factors influence the market-position of gas tumble dryers in the Netherlands.

The secondary question is which possible 'institutional' measures or procedures can be taken to improve the market position of gas tumble dryers.

7.1 MAIN CONCLUSIONS

The following factors can be determined as influential:

First of all, gas tumble dryers have important 'selling points', but these are hardly known by the consumers. The unfamiliarity of the product is partly a result of the high and still growing market share of the chain stores combined with the lacking of the gas tumble dryers in the assortment of this distribution channel.

Second, in the Netherlands, the sale and installation of the gas tumble dryers is not coordinated by one actor. This means relatively much effort for consumers. Also, according to the actors spoken, there is no reason to believe that Dutch installers will sell gas tumble dryers themselves on the short term. Installers fear maintenance problems and don't like occasional orders. The chain stores have, because of the strong competition, no economic interest in selling the gas tumble dryers.

Thirdly the factor 'producers' are in two ways important. First, because of the upcoming 'international account-management' of producers, the market share of the chain stores will grow. They have to concentrate and to increase their market share in order to maintain their influence of the product policy of producers. This is detrimental to the distribution of gas tumble dryers. Chain stores won't sell the product in this form and because of a minimal variety of well known marks, other distribution channels who do sell the gas tumble dryers will lose market share. Secondly, it seems that the large western-European producers have no appearing intentions to produce gas tumble dryers. Exceptions are Crosslee en Miele. Crosslee has a small market share in the Netherlands, Miele doesn't give the gas tumble dryers high priority at the moment. Electrolux, as market leader, has chosen to produce a heat pump dryer.

Finally, the national government recognises the fundamental problems with the market introduction of gas tumble dryers, but doesn't have the answers to solve them yet. The present policy instrument is the Energy Contribution regulation. The contribution is meant for households who already had intentions for buying a gas tumble dryers. The responsible ministry has taken action to refine the problems and possible actions. Fu-

ture actions will be aimed at utilities and chain stores. The exact action forms are not clear yet. No agreements are made with building companies to provide a remedy for an important disadvantage of gas tumble dryers, the installation.

7.2 POLICY RECOMMENDATIONS

This study points out that institutional factors can be identified which have at least a strong relationship with fuel switching-developments. The extent of the influence is difficult to determine. This can be the subject of supplementary research.

The institutional factors identified are (to some extent) a constraint for fuel switching in the Netherlands, the introduction of gas tumble dryers in particular. There are, however, some opportunities; the causes for the poor market position of gas tumble dryers are rather clear and the government policy for gas tumble dryers still has to be formed. The starting point for government policy has to be the opening of the main distribution channels 'chain stores' and purchase combinations for gas tumble dryers. This means:

- A wider supply of gas tumble dryers. By way of supporting investment programs, it may be possible to stimulate (joint) product differentiation of particular the large producers in favour of gas tumble dryers. This policy has to be formed on European level. Gas utilities could (financially) support investment programs.
- Sales and installation have to be co-ordinated by one company. There are two possible ways:
 1. Co-operation between installers and the main distribution channels has to be encouraged. This means a regular dialogue between these actors and the development of new instruments as the 'buying-contract' (see also 4.3.4) with recommendations for installation and references to installation local companies.
 2. Installers have to be encouraged to develop marketing activities for gas fired products. Because this affects a cultural problem, results can only be made on longer term. A possible policy is to create educational activities for installers. They have to be more familiar with new gas fired products. Second, the government can stimulate and communicate the existence of 24-hours maintenance-services.
- The installation problem can be solved for *new* houses when agreements are made between government and building companies. The standard installation of extra gas contact in houses improves the attractiveness (flexibility) of the product gas tumble dryers significantly.

A second option for government policy is to stimulate new distribution channels, better equipped for gas tumble dryers. The existence of internet (internetshop-wet appliances) has been mentioned. Although their market share is very small at the moment, the growth and the special characteristics of this medium give cause to examine the possibilities for the selling of gas tumble dryers more closely. For example, with special links to suppliers of gas tumble dryers and local installers, the 'hassle' for consumers to buy a gas tumble dryers can easily be reduced.

Another development in the Netherlands is the agreements being made between a network of installers and marketing-organisations for a joint marketing-, sales-, service-, installation- en maintenance-service for solar heating systems. In this concept the use of e-commerce is integrated. This concept may be very well suitable for the sale of

gas tumble dryers. Gas tumble dryers also demand special marketing-programs and, as is shown in this report, a special approach towards installation and maintenance.

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ANNEX 1. INDUSTRY FOR FINAL PRODUCTS

Table 1 shows the largest West-European manufacturers of electric domestic appliances (GEA, 1995). Especially Elektrolux, Bosch-Siemens, Miele and Whirlpool are the well known manufacturers in the Netherlands.

Manufacturing group name	Country of head office	Market share 1993 (percentages)	Principal brand names
Bosch-Siemens	Germany	16.2	Bosch/Siemens/Neff/Constructa/Haugerate/Balay/Gaggenau
Electrolux	Sweden	17.8	Electrolux/AEG/Zanussie/Castor/Arthur Martin/Faure/Husquarna/Zanker/Zoppas
Whirlpool Int.	Netherlands	10.3	Whirlpool/Philips/Bauknecht/Laden/Radioloa
Merloni	Italy	9.4	Ariston/Indesit/Scholtes/Smeg/Ignis/Blue Air
Miele	Germany	7.4	Miele
GDA	UK	7.1	Creda/Hotpoint
Elfi	Italy	6.9	Blomberg/Brandt/De Dietrich/Ocean/Thermor/Thomson/Vedette
Crosslee	UK	6.4	Crosslee
Candy	Italy	3.8	Candy/Rosieres/Otsein
Others		14.7	

Table 1: Largest manufacturers of electric domestic appliances, (GEA 1995).

Most manufacturers produce C- and D- label tumble dryers. Elektrolux is with an AEG –heat pump dryer the only manufacturer with a (electric) A-label product. Well known manufacturers of gas tumble dryers in the Netherlands are:

Manufacturing group name	Country of head office
Miele	Germany
Hiddokk	UK
Huebsch	
Coopra/White Knight	

ANNEX 2: LIST OF INTERVIEWEES

- Mr. P.J. van Amstel, Head Product Information, Miele.
- Mr. B. Bakker, Produkt Manager, Expert.
- Mr. Wim Benschop; Business manager, COOPRA (importer).
- Mr. Cees Besseling; Technical Director, Besseling Installation Company.
- Mr. Robert Crabbendam; Head Executive Energy and Environment Consultancy, GGR.
- Mr. Muizer sr., Head Secretary, Vlehan.
- Mr. Gerrit Nijenhuis, Head Sales, Megapool b.v..
- Ms. Aafke Reinders; Policymaking Official, Ministry of Economic Affairs.
- Mr. Bart Scheltema de Heeren, Product Marketing Manager, Electrolux.