HELSINKI UNIVERSITY OF TECHNOLOGY
Faculty of Engineering and Architecture
Department of Energy Technology

Katri Tuovinen

Retail Competition in the Nordic Electricity Markets

Thesis submitted in partial fulfilment of the requirements for the degree of Master of Science in Technology

Espoo, 11 March, 2009

Supervisor: **Professor Pekka Pirilä**
Instructor: **Christophe Defeuilley, Ph.D. (Economics)**

HELSINKI UNIVERSITY OF TECHNOLOGY Abstract of Master's Thesis

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Electricity markets around the world are in transition from monopoly operations to free competitive markets. Production and sales are opened up to competition, whereas transmission and distribution have remained regulated due to their natural monopoly characteristics. Three Nordic countries, Norway, Sweden and Finland were among the first countries in the world to deregulate their electricity markets, both wholesale and retail markets. Development started in Norway in 1991, followed by Sweden and Finland in the latter half of the 1990s. All three markets have been fully open for around 10 years. In the previous studies, Swedish and Norwegian retail markets have proved to be rather competitive with both active retailers as well as customers, whereas Finnish market has shown more moderate results, at least measured with the common competition indicators. This thesis views these three residential retail markets mainly from a comparative point of view, identifying the differentiating factors of the markets, and especially aiming to define the drivers of the Swedish and Norwegian markets on the one hand and the restrictions of the Finnish market on the other hand. This thesis is based on a literature survey and interviews of electricity market professionals conducted in all the three countries.

This thesis concludes that the basic structure (e.g. regulatory framework, market structure) of the Norwegian and Swedish markets creates a solid basis for effective competition without more significant hindrances, but in addition, exceptionally active retailers combined with some other, more particular factors, such as large price volatility due to the hydro-based system, the strong political characteristic of electricity, wide media coverage and the reputation of power sector have altogether resulted in rather dynamic markets. Furthermore, new entrants, which have often been judged as failures in the previous studies, appear to have driven the competition at least to some extent, even if many of them have later left the market. The Finnish market, on the other hand, has some restrictions in the basic regulations, which clearly hinder dynamic competition and create a somewhat stiff system with both passive retailers as well as customers. In addition, the conditions for new entrants are very difficult in the Finnish market and there have only been few new companies, which have not managed to create movements in the same extent as in the Norwegian and Swedish markets. However, it was also noted that, in fact, there exists competition also in the Finnish market, although it occurs in a different form than in Norway and Sweden and this has kept the prices in a rather low and competitive level despite the lack of dynamic competition in terms of customer activity, new entrants and other commonly used competition indicators.

Even though all the three countries have shown some interesting developments during the past ten years, there still exists space for further improvements. Future improvements are expected to mainly stem from further integration of the retail markets and from installing automatic meters, which are both expected to change the situation significantly and to increase competition.

Keywords: Electricity markets, retail competition, Nordic countries

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Sähkömarkkinat ympäri maailmaa käyvät läpi suuria muutoksia, kun markkinoita vapautetaan. Tuotanto ja myynti avataan kilpailulle, kun siirto ja jakelu säilytetään säänneltyinä niiden luonnollisen monopoliominaisuuden takia. Kolme Pohjoismaata, Norja, Ruotsi ja Suomi olivat maailman ensimmäisten maiden joukossa, jotka vapauttivat sähkömarkkinansa, sekä tukkumarkkinan että vähittäismarkkinan. Kehitys alkoi Norjasta vuonna 1991, Ruotsin ja Suomen seuratessa perässä 1990-luvun jälkipuoliskolla. Markkinat ovat olleet täysin avoimia jo noin kymmenen vuoden ajan. Aikaisemmissa tutkimuksissa Norjan ja Ruotsin vähittäismarkkinat ovat osoittautuneet melko hyvin toimiviksi ja kilpailullisiksi aktiivisine myyjineen ja asiakkaineen, mutta Suomen markkinalla kilpailu on vähäisempää, ainakin yleisesti käytettyjen mittareiden, kuten asiakasaktiivisuuden ja uusien tulokkaiden menestyksen perusteella. Tässä diplomityössä tarkastellaan näitä kolmea vähittäismarkkinaa pienkuluttajien kannalta. Erityisesti keskitytään löytämään eroavaisuuksia ja syitä miksi Ruotsin ja Norjan markkinat ovat suhteellisen kilpailullisia ja miksi tilanne Suomen markkinalla on toisaalta melko neutraali, ellei jopa huolestuttava. Työ perustuu kirjallisuuskatsaukseen sekä sähkömarkkina-asiantuntijoiden haastatteluihin.

Työssä selviää, että Ruotsin ja Norjan markkinat omaavat hyvät lähtökohdat toimivaan kilpailuun perusrakenteen (esim. sääntelyn ja markkinarakenteen) kannalta ilman merkittävimpiä heikkouksia ja lisäksi poikkeuksellisen aktiiviset myyjät yhdistettynä muihin hieman erikoisempiin tekijöihin, kuten suuriin hinnan vaihteluihin, sähkömarkkinan poliittiseen ominaisuuteen, mediahuomioon ja sähkösektorin maineeseen, ovat yhdessä luoneet melko dynaamiset markkinat. Lisäksi uudet tulokkaat, joita on usein sanottu epäonnistuneiksi, ovat ajaneet kilpailua osaltaan, vaikka ovatkin myöhemmin poistuneet markkinoilta. Suomen markkina puolestaan sisältää joitakin tekijöitä, erityisesti sääntelyssä, jotka selvästi rajoittavat dynaamista kilpailua ja luovat melko jäykän järjestelmän passiivisine myyjineen ja asiakkaineen. Lisäksi olosuhteet uusille myyjille ovat Suomen markkinalla hyvin hankalat, jonka takia uusia tulokkaita on ollut vain muutama, eivätkä hekään ole pystyneet synnyttämään liikehdintää samassa määrin kuin Norjassa ja Ruotsissa. Työssä kuitenkin huomattiin, että Suomenkin markkinalla esiintyy kilpailua, vaikkakin eri muodossa kuin Ruotsissa ja Norjassa. Tämä on pitänyt loppukuluttajahinnat melko alhaisina ja kilpailukykyisinä dynaamisen kilpailun puutteesta huolimatta.

Vaikka kaikki kolme markkinaa ovat osoittaneet mielenkiintoista kehitystä viimeisten kymmenen vuoden aikana, tilaa parannuksille löytyy yhä. Tulevaisuuden muutokset liittyvät lähinnä Pohjoismaisten vähittäismarkkinoiden liittämissuunnitelmiin ja suunnitelmiin asentaa automaattiset etäluettavat mittarit myös kotitalouksille, joiden molempien uskotaan muuttavan tilannetta huomattavasti ja lisäävän kilpailua.

Avainsanat: Sähkömarkkinat, vähittäismyynti, kilpailu, Pohjoismaat

Preface

This Master's thesis was made for LARSEN (Laboratoire d'Analyse Économique des Réseaux et des Systèmes Énergétiques) in Fontenay aux Roses, France, in 2008.

I would like to thank everyone who helped me during this project, especially my instructor Christophe Defeuilley from LARSEN, other nice and helpful people in Fontenay and supervisor of the thesis, professor Pekka Pirilä from Helsinki University of Technology.

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Espoo, 11 March, 2009

Katri Tuovinen

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List of abbreviations

AMR	Automatic meter reading
CHP	Combined heat and power
DSO	Distribution system operator
EC	European Commission
EDI	Electronic data interchange
EMI	Energy markets inspectorate, Sweden
EMV	Energy market authority, Finland
EU	European Union
EU ETS	European Union emission trading scheme
NVE	Norwegian water resources and energy directorate
NCA	Nordic competition authorities
TSO	Transmission system operator
VAT	Value added taxes

1 Introduction

This chapter gives a short introduction to the research subject and describes the objectives and methodology of the thesis as well as the scope and limitations. In addition, the structure of the rest of the thesis is presented.

1.1 Background

Electricity retail markets around the world are in transition from monopoly operations to free competitive markets. European Union is strongly supporting the development. All the member states were required to open the retail markets to commercial customers by 1st July 2004 and to residential customers by 1st July 2007. The development has however varied largely between the countries, some countries strongly resisting the change and others developing even faster than the requirements. The three Nordic countries, Norway, Sweden and Finland were among the pioneers in deregulating their electricity markets along with, for instance, the UK, New Zealand and some states in the US. The Nordic electricity market reform started in Norway in 1991, followed by Finland in 1995 and Sweden in 1996. As a result, the Nordic countries have a common wholesale market, which is widely considered successful (Amundsen et Bergman 2006b ; Olsen et al. 2006, Amundsen et al. 2006). However, the retail markets have still remained mainly national, although plans and research for a common Nordic retail market have already commenced.

Development of the retail markets have been very different in each Nordic country and the results of introducing competition into retail side vary. The Swedish and Norwegian markets have proved to be rather competitive and dynamic in several studies, whereas the Finnish market have remained more neutral, at least measured with the common competition indicators (see for instance KTM 2004b ; von der Fehr et Hansen 2008 ; Littlechild 2006 ; EEE Ltd 2008). Switching rates are relatively high in Norway and Sweden, retailers have shown reasonable activity and several new companies have entered the market. Customer mobility has remained lower in Finland, there have been estimations that retailers are not interested in competition (KTM 2004b ; EEE Ltd 2008) and the conditions for new entrants are very difficult

and thus there have not been many new companies. However, retail prices appear rather competitive in each of the markets, even in the Finnish market and the range of products has been rather wide in all three countries (Littlechild 2005). Therefore, each of the three markets have shown some interesting developments and certainly give valuable views and lessons of the possible consequences of retail competition.

1.2 Objectives of the thesis

This thesis aims to give a comprehensive image of the three Nordic residential retail markets and most importantly to **find the reasons that have driven competition in Norway and Sweden on the one hand and the reasons why competition and customer activity remains still moderate in the Finnish retail market on the other hand.**

This main objective was planned to be achieved through several smaller objectives:

- By analysing the dynamics of competition in each of the Nordic markets.
- By understanding, which are the factors affecting the dynamics of competition by viewing several important characteristics of the markets, such as regulatory and institutional barriers, access to information, regulatory framework, retailers' strategies, market structure and competition between the new entrants and incumbents on the one hand and incumbents and incumbents on the other hand.
- By viewing the segmentation between customers in the markets (passive and active) and their reactions to price signals and other incentives and finding out is this type of segmentation stagnant.
- By viewing the market development. How the number of switches, offers and new entrants vary over time.

1.3 Scope and limitations

Originally the idea for this thesis stemmed from my instructor who had written a working paper about the electricity retail markets in general. During his research he

had become interested in the Nordic markets, especially in the Swedish and Norwegian markets as they seem to be special cases with their exceptional success in the retail side in addition to the UK market (Defeuilley 2008). The British market is rather widely studied and it is quite well known what has driven competition. Aggressive entrant from the gas sector, British Gas Centrica, and efficient customer acquisition method, dual fuel, have had important roles in the development[1]. In the Nordic countries, electricity is the main energy form and thus, the dual fuel cannot explain the consumer mobility and there has not been one significant entrant who would had challenged the incumbents to compete.

Thus, the original scope was to find out why the Swedish and Norwegian markets work so well. What are the drivers behind these active markets? Why the switching rates are much higher than in most of the countries that have opened up their retail markets to competition? Finland was added to the research because it gives interesting comparison points as it is part of the same wholesale market and has many similar characteristics with Sweden and Norway.

As said, this thesis aims to describe the development of these three retail markets and to view the situation more than ten years after the reforms. The main focus is on the development of competition and on the factors that encourage or hinder competition. Wider analysis of the results and benefits of the market reform is out of the scope of this report. Starting point is, based on the previous literature, that competition in the Swedish and Norwegian electricity retail markets is working considerably well, whereas competition remains more moderate in the Finnish market. This is partially confirmed also in this thesis by viewing the markets with several indicators commonly used to measure the level of competition in the retail markets. However, it is also pointed out that, in fact, there is rather tough competition also in the Finnish market, although it occurs in a different form than in Norway and Sweden and which cannot be clearly noted with these indicators, partially challenging the previous claims of inefficiency in the Finnish market.

1 See more in Section 2.3.1

The thesis is limited to three Nordic countries, Norway, Sweden and Finland (see Figure 1). Denmark, which is part of the same Nordic wholesale market, is left out of the scope because the conditions in the retail market, which was fully opened up to competition only in 2003, are very different from these three other Nordic countries and as a consequence, competition in the retail market and the customer activity are very limited (see for instance Olsen et al. 2006 & 2007). Fifth Nordic country, Iceland is not part of the Nordic electricity market and is therefore excluded from the study.

Figure 1: Nordic market area. Nordic electricity market consists of four Nordic countries, but this study only concentrates on Norway, Sweden and Finland.

This report mainly discusses the retail markets on the aspect of residential consumers. Larger business and service consumers are not included in the study. This decision was made partially because the information of the bigger consumers is more limited and difficult to get, and partially because competition in the residential consumer sector has aroused more discussion. It is rather commonly agreed that large consumers have benefited from competition (Littlechild 2002), but whether it is feasible to open up residential market has been under debate.[2] Thus, rather successful Nordic cases give an interesting aspect to this debate.

2 See for instance Joskow (2000) who casts doubts whether competition in retail electricity markets is really feasible and efficient and argues that the main benefits of electricity market reform stem from wholesale competition and Littlechild (2000) who answers by arguing that competition can lead to benefits also in a such a special market as electricity market.

Another important limitation in this research is connected to the data presented. The collection and availability of various information, e.g. the switching rates and prices, differs significantly among countries. Some data is collected systematically, whereas some are results of occasional surveys with varying coverage and reliability. Therefore, comparison between the countries should be considered with caution.

In addition, it is important to note that three terms commonly used in the literature are also used in this thesis to refer to the companies operating in the electricity market as retailers. Thus, *retailer, supplier or retail supplier* all mean the same.

Furthermore, it should be remembered that the markets are constantly developing and large changes are expected already in the following years, whereas this thesis only views these markets at one specific time, which affects the obtained results.

1.4 Methodology and the structure of the thesis

This thesis is based on a literature survey and interviews of the electricity market professionals (retailers, regulators, researchers) in each three countries conducted during the autumn of 2008. Literature overview aims to give an overall presentation of the three markets by collecting and combining information from several sources. Interviews aim to give an additional view to the previous studies as well as to confirm previous findings, and to map the views of the electricity market professionals. The main results from interviews are presented in a separate chapter, although the knowledge gained during the interviews have helped during the whole writing process and is thus partially used in the whole thesis.

The rest of the thesis is organised as follows. Chapter 2 gives background for the rest of the thesis. Electricity markets, uniqueness of electricity, competition and role of retailers are discussed in general. Structure of the electricity markets is described shortly with explanations of most common terms, to give the readers a good idea of where the retail market is situated. The situation of retail competition around the world is viewed with a short case example of Great Britain. In addition, most commonly used indicators to measure the level of competition in the retail electricity

markets are presented in order to confirm the different levels of activity in the Nordic markets. Chapters 3, 4 and 5 describe each of the Nordic markets country by country, first Norwegian market, then Swedish and to finish the case studies, Finnish market is discussed. All of the markets are viewed in similar aspects. First some background and basic facts are provided. Then the development of the deregulation and prices are presented, followed by the description of the regulatory framework. After, the market is viewed from supply and demand sides, in other words from the retailers' side and the customers' side. The market structure is described in detail, the strategies of retailers are analysed and the customers' behaviour is discussed. Some similarities of the countries, such as the structure of the electricity bills and types of contracts, are only presented in detail in the chapter of Norway to avoid repetition. The future of the Nordic retail markets is discussed in Chapter 6. Chapter 7 presents the main results from the interviews. Chapter 8 discusses the results and concluding comments are given in Chapter 9. Chapters 1 to 6 are mainly based on the literature analysis and chapters 7 and 8 includes also the empirical findings gathered during the interviews. List of interviewees can be found in Appendix I.

2 Electricity retailing in general

This chapter gives general basics of the electricity markets and especially electricity retailing in order to create basis for the following chapters. The role of retailers and retail competition are shortly discussed and electricity market is discussed in comparison with normal markets in order to highlight the special characteristics of the product itself as well as the market. In addition, the situation of electricity retail markets around the world is shortly viewed and common indicators of retail competition are presented.

2.1 Electricity markets – putting retailer in its place

The starting point for restructuring the markets was fairly similar in each of the Nordic countries. Traditionally the Nordic electricity markets were mostly operated by state and municipally owned, vertically integrated utilities, who had a public service obligation. Their supply was in general backed by own generation or long-

term contracts. Monopoly rights and self-sufficiency requirements had led to over capacity. The aim of the electricity market reform was mainly to even the price differences between the regions and customer groups, secure reasonable end-user prices and to remove the over capacity and thus to improve the overall efficiency of the markets. Common competitive wholesale market was a big step towards right direction, but to make sure that the benefits would come all the way to end customers, all three countries have introduced competition also into their retail markets.

After the deregulation, the Nordic electricity market is divided into regulated monopoly operations, *transmission and distribution*, and to competitive operations, *generation and supply*. On the regulated side, high voltage electricity transmission from production plants to distribution networks is taken care by *transmission system operators* (TSO). In the Nordic countries, each country have one legally separated transmission system operators, Statnett in Norway, Svenska Kraftnät in Sweden and Fingrid in Finland. Low voltage distribution to end consumers is taken care by *distribution system operators* (DSO). There are large amount of DSOs in each Nordic country and most of them are small, municipally owned utilities. Network tariffs are regulated by national regulators.

Competitive part of the electricity market is essentially formed by two types of markets, the Nordic wholesale market and the national retail markets. On a Nordic wholesale market, electricity is produced in *production plants* under competition. The wholesale price, typically called *spot price*, is formed by the equilibrium of demand and supply in the Nordic power exchange, *Nord Pool*, which is the world's first multinational exchange for trading electrical power and broadly considered successful.[3] Nord Pool consists of two markets, the physical market, *Nord Pool Spot AS* (which consists of day-ahead market Elspot and intra-day market Elbas), and financial market, *Nord Pool ASA*. *Retailers* buy their power from Nord Pool or with bilateral contracts or produce their electricity themselves and sell it to the end consumers. In 2007 more than 70% of all the electricity consumed was traded in

3 Nordic power exchange, Nord Pool, originates from Norway. Sweden joined the market in 1996 and Finland was integrated in 1998.

Nord Pool (NordREG 2008b). The structure of the Nordic electricity markets after the reform is presented in Figure 2.

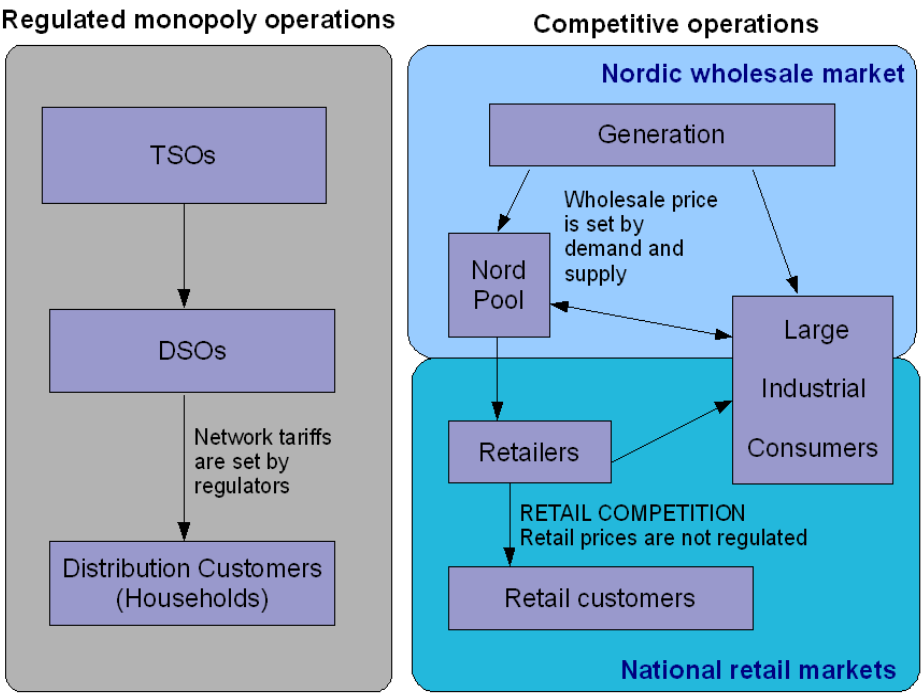

Figure 2: Structure of the Nordic electricity markets after the deregulation.

Thus, in a nutshell, the retail market consists of retailers and retail customers. Regulators create the rules and framework for the market. Electricity retailing is primarily financial operations as the actual delivery of electricity to consumers is taken care by DSOs. Retailers act as an intermediate between the wholesale market and end consumers. Retailers may have own production and/or distribution or they can be totally independent. Deregulated market has created new challenges for the retailers and different types of risk management is needed (most importantly price and volume risk). Electricity retailing is in general business with small margins and high risks (LUT 2008). Retail competition can be defined, shortly, as the ability of a customer to choose a preferred retail supplier (Littlechild 2002). Consumers can choose from which retailer to buy their electricity according to their preferences. Most commonly the motivator to switch is the price and possible savings. Price of electricity is composed of three parts, the price of electric energy, taxes (electricity tax and VAT) and the network tariff, from which only the price of electric energy is

under competition. For residential consumers electric energy accounts for around 30%-50% of the electricity bill, varying somewhat between countries and between different customer groups. In addition to price competition, competition in electricity retailing is generally expected, for example, to improve customer services, create innovations, bring choice of commercial offers to customers (Eurelectic 2007) and improve security of supply by transmitting high wholesale prices to end-users in scarcity periods (Pakkanen et al. 2008).

2.2 Retailing in electricity markets compared to retailing in "normal" markets – uniqueness of electricity

Even though several countries have decided to introduce competition into their retail electricity markets, it has been under debate whether competition is really feasible in a such a special market as electricity market is, especially in the residential market. The role of electricity retailers has been questioned (see for instance Joskow 2000), mainly because electricity as a product has several special characteristics, which excludes the traditional tasks of a retailer.

Electricity differs from normal commodities in several aspects. Electricity is invisible and homogeneous. Almost all the consumers already have electricity and are rarely without it. Electricity is often taken for granted. Customers do not need to do anything to be supplied. It is purchased by almost everybody and all the time. The choice is rather new and often unclear and not well understood. In addition, electricity cannot be economically stored in large amounts and thus the demand and supply has to be in balance all the time.

Due to these characteristics, electricity retailing differs largely from normal commodity markets. Two main tasks of retailers fall outside electricity retailers control. Firstly, electricity retailers do not take care of the actual distribution and secondly, differentiation and marketing opportunities are limited for a good as homogeneous as electricity (Defeuilley 2008). Furthermore, the opportunities for electricity retailers to add value are estimated to be rather limited compared to traditional retailers (Joskow 2000). Therefore, as said, unlike the normal retailers,

electricity retailers are primarily financial intermediates as their main task is to buy electricity in the competitive wholesale market and resell it to end consumers, although electricity retailers can add value at least in some amount, for example by surrounding services and by providing different types of contracts to fit customers preferences.

2.3 Retail markets in the EU and in the world

Even though it has been under academical debate whether introducing competition into residential electricity retail market is feasible, several countries have decided to open up their retail markets. Also the European Union is requiring its member states to open up their electricity markets to competition. The Electricity Directive 2003/54/EC provided that large consumers have been able to choose their supplier since July 2004 and all the consumers, including the residential consumers, since July 2007. The goal is to create more efficient and dynamic energy sector by extending competition and encouraging cross border transactions and to achieve eventually one common internal electricity market (EC 2004). However, the development varies largely between the member states, some developing faster than requirements, e.g. the Nordic countries and some resisting the change, e.g. France and Spain, and there is still long way to a truly common internal market. The overall situation appears still rather moderate as for example the annual switching rate have remained in most of the countries in about 1% or less (EC 2008). According to a Commissions report (EC 2007) there still exist several problems for example connected to inefficient unbundling of network and supply activities and problems in the functioning of the wholesale markets reflecting to the retail side. However the report also states that the process of market opening has already significantly changed the functioning of the markets, provided new market opportunities and led to the introduction of new products and services. Thus, although some progress has already been made, the objectives of the market opening have not yet been fully achieved.

Outside the European Union there exist several other electricity retail markets that have been opened up to competition and some have succeed reasonably well,

although the general image still remains rather neutral or moderate. In the World Energy Retail Market Ranking (VaasaETT 2007, see Figure 3), Virginia (Australia), Great Britain and South Australia (Australia) have been ranked as hot markets and Texas (USA), Norway, New South Wales (Australia), New Zealand, Sweden, Finland, Netherlands and Flanders (Belgium) as active markets. VaasaETT has researched the retail markets very widely covering over 30 competitive energy retail markets worldwide. They base their ranking on annual switching rates and classifies the markets as hot, active, slow and dormant with annual switching rates of over 15%, 5-15%, 1-5% and less than 1% respectively. The research gives fairly positive picture of the situation in the retail markets, as it indicates that most of the markets opened up to competition have shown an up trend in switching in the recent years, although the amount of dormant markets that show very little activity, is still high and many other markets are not even listed as the development of retail competition has been insignificant or even non-existent.

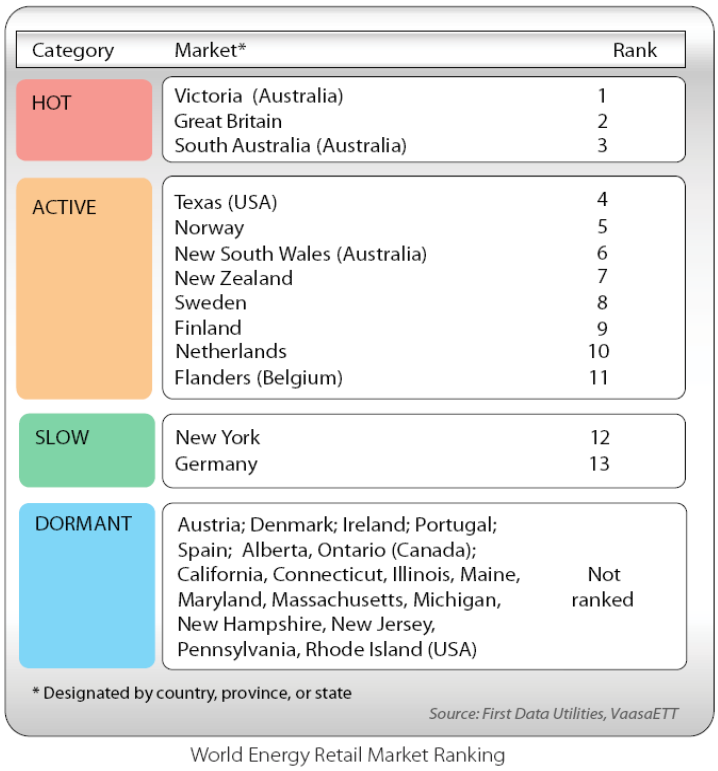

Figure 3: World Energy Retail Ranking, 3rd edition. (VaasaETT 2007)

2.3.1 Case example: Great Britain

Together with the Nordic countries, Great Britain was one of the pioneers of the electricity market reform as the market deregulation commenced already in 1989 with the introduction of the Electricity Act. British retail market is one of the most active retail markets in the world and is a good example of the successful exceptions in Europe together with the Norwegian and Swedish markets. As seen in the Figure 3, Great Britain was ranked as second active market in the world in the 3rd edition of the World Retail Market Ranking. Even though the British retail market, its design and development, differs largely from the Nordic markets, it gives an interesting view of the possible results of introducing competition into retail market. The British case is more widely studied than the Nordic markets and the drivers of competition are rather well identified. Therefore, the British case, as one of the motivators for this study and as a good comparison point, is shortly discussed below.

Traditionally the British electricity supply was operated by twelve Regional Electricity Companies, which were also in charge of the distribution. Retail market was opened up in stages. Since May 1999 all the customers, also the smaller residential customers (often called domestic customers in the UK), have been allowed to switch supplier, which means that the market has been fully open already for 10 years, around the same time as the Nordic markets. By 2006 47 % of consumers had switched their supplier and the annual switching rate was around 18 % (Ofgem 2008). The electricity market regulator, Ofgem have estimated that there have been real benefits from competition, also in the residential market, although some concerns have been raised, particularly due to the margins, which still appear to be rather high, even higher than in Sweden (Milione et Törnqvist 2007). In 2007, Ofgem reported that price competition in the market was vigorous, suppliers were innovative, service was improving and customer mobility was still high. All in all, the market was estimated to be dynamic and highly competitive (Ofgem 2007).

However, the British retail market differs largely from the Nordic markets and have clearly different drivers of competition than the Nordic countries. For instance, the British market has been quite heavily regulated also after the market reform, whereas

the regulation in the Nordic countries is rather light as will be seen in the following chapters. In the UK the retail prices of incumbent retailers were initially regulated in order to create headroom for new entrants. The price cap was removed in 2002 when the regulators considered that the market was mature enough. In addition, initially there was 28-day rule in use, meaning that all the customers were free to terminate their energy contracts at 28 days' notice. This rule, which was originally meant as a transitional protection for customers, but turned out to be regarded permanent, limited the development of different contract forms, especially fixed price contracts, which have been very common in the Nordic countries (Littlechild 2008), and consequently most of the customers are still on the basic contracts. The rule was only abolished in 2007. Moreover, privatisation was done during the reform, whereas in the Nordic countries it has not been considered necessary.

The most successful method of acquiring customers in the British market has been dual fuel offers, which means selling electricity combined with gas. In 2007 90 % of switchers consuming both electricity and gas changed to dual fuel contracts (Ofgem 2008). In the Nordic countries electricity is the main energy form. Usage of natural gas is rare, the gas markets are still very immature and the infrastructure is limited. Thus dual fuel has not been widely used and cannot explain the amount of competition in the Swedish and Norwegian markets. Moreover, selling from door-to-door has been most efficient method to reach the customers in the UK, which would not work most probably in the Nordic countries due to cultural differences (EEE Ltd 2008).

Furthermore, the British market is dominated by only six retailers and one significant entrant, incumbent supplier from gas sector, British Gas Centrica, which has played a central role in the development. It aggressively emerged to the electricity retailing as it was required to reduce its market share in the gas sector.

British case is thus an interesting example together with the Nordic countries showing that dynamic competition can be created from very different initial situation and with different ways.

2.4 Indicators to measure the level of competition in the retail electricity markets

Level of competition in the retail electricity markets can be measured with several indicators, which do not necessarily end up to the same results. That is why it is better to use several indicators to view each market. Indicators to measure the level of competition in electricity retail market found in the literature are:

- Switching rate (cumulative, annual, net, gross)
- Number of all retailers and number of nationwide retailers
- Number of independent retailers and their market shares
- Market share of the largest companies
- Correlation between wholesale and retail prices
- Price differences between retailers
- Price level and margins
- New innovations
- New entrants and barriers to entry

Switching rate is one of the most commonly used indicator to measure the level of competition. However, switching rate, which measures the number of supplier switches, has many shortcomings. For instance, it does not tell the real level of customer activity as it does not include the customers who have renegotiated their contract with their current supplier[4] or the customers who have compared prices but ended up staying with their incumbent. Moreover, very high continuous level of switching would not be healthy, indicating that there are some problems in the market, but the switching rate should be more of a reasonable level indicating that customers exercise their possibility to choose and thus creates the necessary pressure for retailers to compete (Pakkanen et al. 2008). In addition, switching rate only measures the number of switches instead of number of switchers, meaning that re-switches and returns to incumbent supplier are included.

4 Some estimations of the amount of renegotiated customers are available for the Nordic countries.

Light can be shed on this issue by viewing net and gross switching rates[5], but unfortunately these rates are not collected in all the countries inhibiting closer comparison. Moreover, as already notable time has elapsed from the market opening in the Nordic countries and the markets were opened up at different times, the importance of cumulative switching rate can be questioned (Pakkanen et al. 2008). Maybe more truthful comparison could be obtained by viewing the annual switching rates, which indicate better the current situation. Defining reasonable level for switching rates might be challenging and probably depends on each market, but generally annual rate of 5% - 20% could be considered healthy (Cody et Gray 2004). In 3rd benchmarking report, the European Commission estimated annual switching rate of 10% reasonable (EC 2004).

For effective competition, sufficient number of electricity retailers is required and especially the number of active retailers is important in order to guarantee availability of choice to customers. Market shares of the retailers can be also viewed. Generally very high concentration in the market signifies inefficient competition and possible use of market power, although in the electricity sector it has been estimated that there might be benefits from economies of scale. Number of independent retailers can also signal the efficiency of competition. Independent retailers are often new and the most active ones. In competitive market there should not be significant entry barriers to enable the new companies to enter the market and challenge the incumbents.

Price is important in competition. There are several indicators connected to the price in the electricity markets. It is often considered that retail prices should correlate with the wholesale prices in order to transfer the price signals all the way to the end consumers and thus enabling demand elasticity and improving security of supply. In addition, efficient competition should reduce the price differences between the retailers and customer groups and squeeze the margins low.

5 Gross switching rate includes all the movements in the market, whereas net switching rate indicates the percentage of customers having left their incumbent retailer and excludes the count of multiple switches.

Correlation between the retail and wholesale prices is also little bit controversial indicator. In terms of competition in general, the correlation is considered as a sign of efficiency, but whether price signals are needed to come all the way to end consumers in the residential retail electricity market is somewhat disputed. As said, on the one hand, volatile prices signal scarcity of electricity and possibly improves the security of supply by enabling demand response, but on the other hand, end consumers have rather limited possibilities to adjust their consumption in the short run, particularly with the current load profiling systems that rewards the savings rarely (depending on the meter reading frequency, usually once a year) and even then customers do not receive the monetary savings fully as the reductions are calculated based on the yearly average, not taking into account the time of the consumption reduction. In addition, as will be seen later in the Finnish case, stable prices are not necessarily a negative characteristic in the residential sector, especially in the customers' point of view, as the stable prices often protect the customers from large price peaks. In other words, by hedging their sales in the long run, retailers in the Finnish market work more as a bumper between the wholesale prices and customers than in the Swedish and Norwegian markets, which is sometimes considered as one of the essential tasks of retailers. Thus, the situation cannot be evaluated only based on the correlation of the retail and wholesale prices. In some cases correlation between financial product prices and retail prices might give a better image of the situation as retailers secure their sales with derivative contracts rather far in the future and do not buy straight from the physical market.

In addition, competition is expected to stimulate new innovations and add value compared to the regulated markets. In electricity markets, this could mean, for example, better customer service and new types of products.

Most of these indicators are rather difficult to measure, which is probably why consumer switching rate has remained the most common indicator despite its shortcomings. Moreover, defining competitive levels for these indicators is not easy and probably depends on the market. For example, generally it is considered that more competitors, better competition. However, in the electricity market it does not

seem to be always the case. For instance, there are hundreds of small retailers in Germany (retail market fully open since 1998), but competition is not particularly active, with cumulative switching rate of only around 10% (Verivox 2008). On the other hand, there are only six big, active retailers with market share of over 99% altogether in the UK and 10 in South Australia (retail market fully open since 2003) and the customer activity has been reasonably high in both of the countries, 47% and 34% respectively (Ofgem 2007, NERA 2007). Furthermore, the data required to use these indicators is often not available or not even collected systematically.

Even though these indicators aim to give an image of the level of competition in the markets and are often used, the usage of these indicators can be questioned and it is not fully agreed, which ones are the best for the retail electricity markets. As a rather new concept, the retail models and evaluating of them is still being developed, which can be noted in some reports by different parties that aim to define the indicators most suitable for retail markets.[6]

Next three chapters describe the Nordic retail markets and also discuss them by using these indicators. Exact evaluating or comparing between countries is not possible due to previously mentioned difficulties connected to these indicators, at least in the scope of this study, but it can be noted even with a rather superficial overview that the Norwegian and Swedish markets do appear more dynamic than the Finnish market, just like suggested in the previous studies. However, it is also noticed that even if the Finnish market appears least competitive, there exists some kind of competition, although it occurs in a different form than in Norway and Sweden and can be considered somewhat problematic on some aspects.

6 For example Finnish Energy Market Authority aims to develop indicators to follow the development of the level of competition (EMV 2005) and in 2008 Nordic Energy Regulators informed that they are developing a new set of statistical indicators to measure the functioning and status of the wholesale and retail markets as current information does not give a comprehensive image of the situation (NordREG 2008b). Suggestions for possible indicators include supplier switching ratio, smart meter ratio, product diversification on consumer market and number of customers and products, supplier margins, number of independent suppliers and their market shares, consumer access to market information and assistance. Final indicators are planned to be published during 2009.

3 Electricity retail market in Norway

Norway was one of the first countries in the world to deregulate its electricity market and the Norwegian retail market is widely considered as one of the most active and successful. In this chapter Norwegian electricity retail market is described. First some background is given to form an image of the Norwegian power sector. After, the development of the deregulation and end-user prices are described. Then retail electricity market is presented from regulation, retailer and customer points of views.

3.1 Background and basic facts

Norwegian electricity market is the smallest of the three Nordic markets with around 2,3 million household consumers. The consumption of electricity is high due to cold weather, large share of electricity heating and large amount of energy intensive industry. The total consumption of electricity was 126 TWh in 2007 (NordREG 2008b). Norwegian household sector's consumption is typically around 35 TWh of electricity per year, but varies somewhat depending mainly on the changes in the outside temperature. Average consumption of Norwegian household is very high, around 19 000 kWh due to the high amount of electric heating, which stands for about 98 % of all the households (Pakkanen et al. 2008).

Norway produces its electricity almost exclusively with hydro power (98 %) and is therefore very dependent on the weather conditions. Annual production varies largely from year to year according to the hydrological situation. Over the past years, the generation has generally ranged from about 104 TWh to 142 TWh. The anticipated generation of a normal year is approximately 118 TWh (Johnsen 2003). Generation is moderately concentrated. The three largest generators have a market share of around 40% altogether (Littlechild 2006).

3.2 Norwegian deregulation

Norway was one of the first countries in the world to deregulate its electricity market. The main motivators behind the reform were large price differences between

consumer groups as well as regions, inflexible end-user prices, which did not reflect the resource scarcity, and too large and inefficient investments (Johnsen 2003). The aim of deregulating the market was thus to ensure an efficient utilisation of resources, reduce costs, equalise prices and to secure reliable supply. In addition, the simultaneous development in other pioneer countries, like the UK and New Zealand had an influence to the Norwegian decision to reform their electricity sector (Bye et Hope 2005).

The electricity market was deregulated in the beginning of 1990s with the introduction of the Energy Act, which came into force in January 1991. Exclusive supply rights of regional utilities were removed and a third-party access to networks on a non-discriminatory terms was introduced. Switching supplier became possible at the same time both for industrial customers as well as for residential customers and thus, the market has been fully open in principle since then. However, the switching costs were high, maximum NOK 5000[7], in the beginning and switching remained very low. The barriers preventing small consumers from exercising their choice were progressively removed. The maximum switching charge was reduced to NOK 4000 in 1994. In 1995 load profiling system was introduced, which means that the residential consumers could switch supplier without installing expensive hourly metering equipments. However, small switching charge of NOK 256 still remained. Customers were able to switch every quarter. Competition remained still low as in addition to the customer fee, each supplier had to pay NOK 4000 fee per each distribution area they were active in. These fees slowed down the development of true retail competition. In 1997 all the fees were removed and since 1998 the customers have been able to switch supplier every week (NVE 2007). Ownership changes during the reform were minor. The reform was largely implemented without privatisation as it was not regarded necessary and it was considered politically unacceptable (Bye et Hope 2005). Important steps of the development are presented in Figure 4.

7 1Euro = 8,892 NOK in early 2009

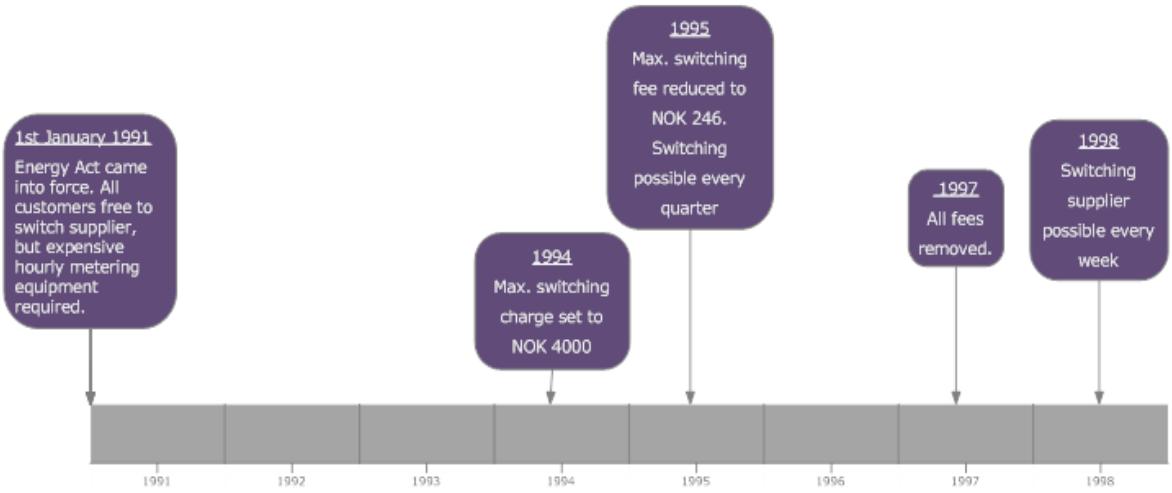

Figure 4: Development of the Norwegian deregulation.

3.3 Regulation

3.3.1 Regulatory authorities

Regulation in the Norwegian electricity market has been fairly light but effective. Norway is reported to have the best resources in the electricity market regulation and supervision out of the three Nordic countries (EEE Ltd 2008). Norwegian Water Resources and Energy Directorate (NVE), which is subordinated to the Ministry of Petroleum and Energy, is the main authority responsible of controlling and supervising the Norwegian electricity market. NVE has played an active role in developing and improving the market and encouraging competition. NVE also collects and publishes information about the switching rates quarterly.

Norwegian Competition Authority is another important authority in the electricity retail market. Since 1998 Norwegian Competition Authority has maintained a web based price comparison service[8], where all the suppliers are obliged to inform their prices, which are offered with the terms of Standard Agreement. This service is considered comprehensive, although the amount of retailers informing their prices to

8 http://www.konkurransetilsynet.no/no/kraftpriser/sjekk-kraftpriser/

the page has decreased somewhat.[9] In addition, Competition Authority monitors the company merges and acquisitions. Consumer affairs, such as individual complaints, are taken care by the Consumer Ombudsman.

3.3.2 Retail market regulation

Regulations connected to the retail market are light but effective. Intervention is indented to remain as small as possible and the competitive market is let to take care of the development with the minimal required regulation. In addition, significant regulatory measures have been made to increase market transparency and consumer switching. Main regulations of the retail market are presented below.

Default supplier, which means the supplier who supplies the consumers that have not made an active choice, is the local DSO. In practice it usually means the incumbent retailer. Default supply contract is standard variable contract. The default prices are not regulated and generally prices for customers who have not been active are higher than the prices of retail suppliers, which gives an incentive for customers to switch. The default supplier is obliged to inform customers about their opportunities to choose their supplier. The use of default supplier is seen important due to consumer protection questions.

Procedure for switching supplier is very important for the functioning of the retail markets (Olsen et al. 2007). In Norway, customer switching process works efficiently. Switching is free and very easy for customers. Customers only need to contact the new supplier, who sends a notification to the distribution company by EDIEL (standard communication system for the power market). The DSO checks the customer data and collects the customer's meter value. One week before change of supplier, the distribution company notifies both the old and the new supplier. Without any delays due to incorrect data in the notification from the new supplier, the process might take a few days but no longer than two weeks (NVE 2007). Switching is possible every Monday.

9 Mainly the retailers who have high prices use different term as they do not even wish to be listed in the service. This is not considered as a significant problem as they are not nationwide retailers.

None of the end-user prices are regulated, but there are some restrictions connected to the *price changing*. Changes in the prices of variable price contracts can be done in two weeks notice and the notification has to be done in a suitable manner, which in practise means that personal notification is not required, but an announcement for example in a newspaper is sufficient.[10] These regulations enable the prices of variable price contracts to follow the wholesale prices closely.

In Norway companies are obliged to have a *licence* to sell electricity, which differs from other Nordic countries. The licence is fairly easy to obtain and thus does not restrict competition. In 2007, 264 companies had a licence. 155 of these operate also in network or generating business. 74 of these are only involved in selling and 29 have simplified conditions for small scale operations (Elforsk 2007b). However, not all of these companies are active in the retail market.

Separation between DSOs and sales is considered essential for retail competition as it provides equal opportunities for independent retailers to operate in the market. In addition, effective separation aims to prevent cross subsidization between monopoly operations and competitive operations. In Norway, management and accounting separation of DSOs and supply is required for all the companies. In addition, there are special regulations by authorities to secure the neutral behaviour of the DSOs. Suppliers are not allowed to have an access to DSOs' customer registers and DSOs services should be offered to all the suppliers on equal basis. In 2005, a suggestion of legal splitting between retailing and network operations was presented but was finally not accepted (EEE Ltd 2008), but as of 2007 legal separation has been required for companies with more than 100 000 customers according to the requirements of the European Commission's Second Directive. Only seven companies meet this requirement (NVE 2008a). Despite these rules, there have been some concerns of insufficient separation and unfair sharing of information (ESA 2007).

10 Although if the price increase is more than 2,5 øre/kWh the customers must be informed personally.

The electricity bill is composed of two parts, the network tariff and the electricity tariff. Incumbent companies invoice these in one bill, but others usually send separate bills, which can be considered as competitive advantage for incumbents as customers might take two bills as a barrier to switch. A proposal of two separate invoices for everybody was considered in 2005, but it was not accepted (von der Fehr et Hansen 2008).

3.4 Price development

The total cost of electricity to end customers is formed by the price of electric energy, taxes (electricity tax and VAT) and the network tariffs. Network tariffs are regulated and cannot be affected by switching. The only part under competition is thus the price of electricity, which accounts in Norway for about one third of the total bill varying slightly depending on the amount of consumption.

Before the switching fees were abolished, the Norwegian retail prices were fairly stable and did not correlate much with the wholesale price as the prices were usually adjusted only annually. Also, the suppliers mainly bought their power with bilateral contracts, which gave even less incentives to adjust the prices more often. In 1997 the situation changed as the customers were no more locked in with their incumbents. Suppliers were forced to lower their prices and start to operate more on the market price rules and this pattern has continued since and gotten stronger (KTM 2004b).

Between 1998 and 2000 the prices were fairly low due to a good hydrological situation in the market, but started to increase somewhat in 2001 when the situation became more normal. The dry winter of 2002-2003 caused a huge spot price peak, which was reflected also into the retail prices. After the price peak the prices have again become more stabilised but at a somewhat higher level.

Another spot price peak was seen in 2006, which again was seen clearly also in the retail prices. In 2007 prices started to go down, but again in 2008 the trend has been increasing. The spot price and retail price (standard variable price) development

between 1993 and 2007 is shown in Figure 5. The prices are given in Norwegian currency, but the figure clearly shows the price developments and the correlation between the prices.

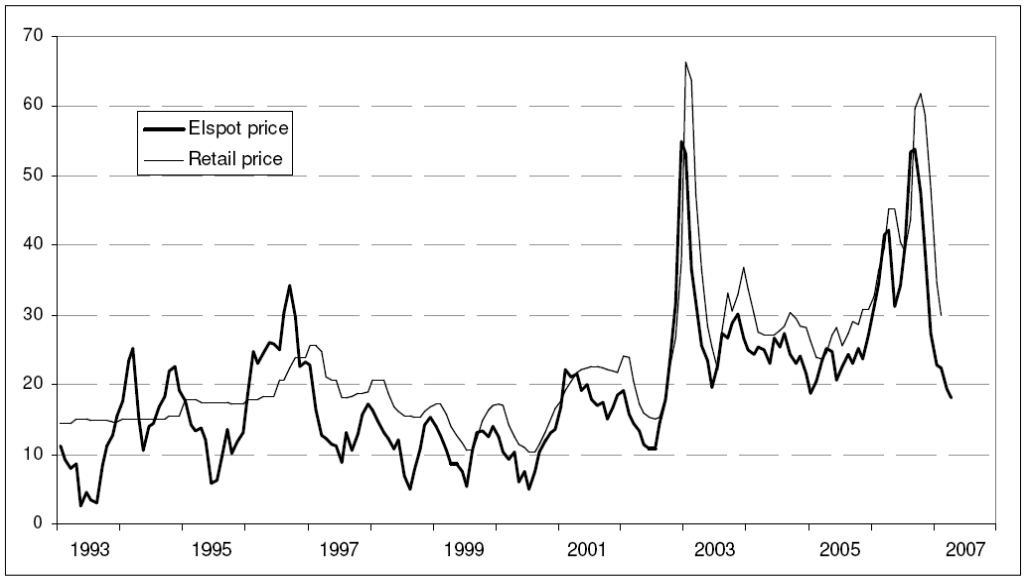

Figure 5: Development of retail electricity prices in Norway in comparison with spot price development, øre/kWh. (Johnsen et Olsen 2007)

Already from this figure it can be seen that the Norwegian retail prices have started to follow the wholesale prices more and more closely and nowadays the correlation is rather strong. This correlation has been studied more closely in few reports, such as KTM (2004b), Johnsen et Olsen (2008) and von der Fehr et Hansen (2008). All the studies concluded that the correlation is strong, even during the price peaks. Retail prices include a small mark up compared to the wholesale price and have a tendency to lag. The lag is estimated to be around 2 weeks, which is the time needed for announcing price changes. However, the lag is noted to be longer when the prices are decreasing than what when the prices are increasing.[11]

3.5 Market structure

Traditionally Norwegian electricity market has been very fragmented. After the deregulation, the concentration in the supply side has increased mainly due to merges

11 See more in section 3.6.3

and company acquisitions although it still remains less concentrated than the Finnish and Swedish markets (EEE Ltd 2008). At the moment there are about 158 suppliers, whereas before market opening there were around 224 suppliers. The market share of the three largest suppliers has increased from 37,2% in 1997 to 56,2 % in 2003 (Littlechild 2006). Rest of the companies are rather small. Only these three largest companies have market shares of over 5 %. In recent years several companies have been changed from municipal companies to limited companies, accounting now for more than 70% of all the companies (Amundsen et Bergman 2006a). In addition, larger regional power companies have been established through acquisitions and merges (Amundsen et al. 2006).

The amount of suppliers acting nationwide has varied over time between 10 and 35, but is usually around 15 and the amount of suppliers operating almost in all the network areas is around 30 (von der Fehr et Hansen 2008). Most of the 158 suppliers do not thus compete actively, but generally the number of active retailers is considered sufficient for efficient competition.

In addition to the merges and acquisitions, the amount of retailers has varied over time also due to entry and exit of new retailers. Norwegian market has had several independent retailers entering the market, both new entrants from other areas, especially petroleum companies (e.g. Statoil, Shell) but also totally new companies (e.g. Norges energi). Some new entrants have managed to gain reasonable amount of customers and few of them still exists in the market, but many have been bought by a bigger company or had troubles, for example with billing systems, and have left the market. Some of the new entrants, which have been acquired by larger company, still exist as a separate brand in the market. For example Norges Energi started as an independent retailer, but was bought by Hafslund few years later. However, Norges Energi still continues to operate as a low cost brand. In 2008 NVE reported that there were around 5 independent suppliers in the household market and none of them had a market share over 4 % (NVE 2008a). Foreign entry has been fairly low. Haflsund Group is partly (35%) owned by Finnish Fortum, but otherwise no big foreign players are in the market.

3.6 Retailers' strategies and activities

In general the Norwegian retailers are rather active and retailers really compete against each other, but as described earlier the market structure is very fragmented and not all of the retailers take part in competition. Roughly the retailers can be divided into large companies and independent retailers, who compete nationwide and to small municipal utilities who have adopted more passive strategy. The number of small municipalities is dominating, but the number of active retailers is considered sufficient for dynamic competition.

Large incumbents have aimed to grow mainly through acquisitions, but also by acquiring consumers organically. New entrants have been active and created movements in the market. The entry has been continuous, which has kept the market dynamic. For example, a petroleum company Statoil entered the Norwegian electricity retail market in 1998 challenging the incumbent retailers with active campaigns and have reportedly had notable role in driving competition (Fosby Livgard 2007).

Smaller municipalities are often more passive and do not try to gain new customers actively and often offer cheap prices only locally. Some of them might have different objectives than making profit, for example to support their town. Some municipalities who have agreements with Statkraft have particularly low prices for the customers in their distribution area.

Common activities of electricity retailers are presented below.

3.6.1 Contracts offered and innovations

Traditionally Norwegian suppliers, as well as the Swedish and Finnish suppliers, had only one type of contract, standard variable tariff. A special characteristic of the Nordic markets is the increased amount of contract types, which differ in their terms

and risk profiles. The contracts offered in Norway are similar to other Nordic countries.[12] Basic contracts are:

- Standard variable contract or traditional contract. Suppliers may adjust the price when appropriate (after notification), allowing them to pass on the cost increases to customers. Price usually contains fixed and variable parts. Standard variable contract is also the default contract.
- Fixed price contract. Price is fixed for an agreed period of time, usually one to three years, but some other lengths have occurred too. Fixed price protects customers from increasing wholesale prices, but on the other hand sometimes customers might end up paying more than the wholesale price level.
- Spot price based contract. The price directly reflects the Nord Pool day-ahead spot price plus a margin and/or a possible fixed fee.

In Norway a standardised retail product system, called Standard agreement, has been developed by electricity supply industry in cooperation with consumers' agency and NVE, and retailers offering products with these terms are required to publish their prices on the Competition Authority's web page. Most of the retailers offer these contracts and most of the customers choose them, so the amount of other types of contracts is not very significant. Some retailers have bundled electricity with other products, e.g with oil, but it has not been very popular and electricity retailing has concentrated mainly on the electricity itself (von der Fehr et Hansen 2008).

3.6.2 Marketing

Marketing has been varied although not very wide-scaled. There have been some direct mailing, telemarketing, advertisements in newspapers, radio and TV advertising and even selling on public places, for instance in shopping centres and fares. The margins are small and thus it is not even possible to afford expensive marketing. Telemarketing seems to be fairly efficient in this sense and it has been

12 As these are the most typical contracts also in Sweden and Finland, they will not be described in detail again in the following chapters. Some rules connected to the contracts e.g. the price changing regulations differ from country to country and will be discussed more closely separately in each chapter.

quite popular. There has been also very small amount of door-to-door selling, which has been the most efficient method in the UK, but in general it is not very suitable for Norwegian culture nor other Nordic cultures either. In addition, the Competition Authority's website is used as a marketing tool, which is fairly efficient for retailers with low prices as media often refers to this service especially during high prices. Also almost all the retailers have nowadays own internet pages, which are good sources of information.

3.6.3 Price setting

As mentioned, before the deregulation price differences were large between the customer groups and between different areas. Competitive pressure on prices was expected to equalise the prices and squeeze the margins low and thus to guarantee supply with reasonable prices to consumers. In addition, competition was hoped to bring flexibility to the prices, which is especially important in a hydro power dominated system like the Norwegian system is. Annual variations in generation are large, but traditionally the prices were adjusted usually only about once a year and thus did not reflect the actual scarcity of power.

As said, the end-user prices are not regulated in Norway and thus the price formation is solely based on the market and the retailers decisions. Retail electricity prices in Norway follow closely the wholesale price changes although with a small lag as retailers are able to alter prices of variable price contracts every two weeks. Correlation has been strong even during the large price variations, showing that the retailers use the wholesale price as an opportunity cost to their production, although the lag seems to be longer during sharply decreasing prices (von der Fehr et Hansen 2008 ; Johnsen et Olsen 2008).

According to estimations, differences between the customer groups and across the areas have equalised (Johnsen 2003), although differences still appear. Especially the differences between the retail segments, the active and passive retailers, are reported to be fairly high (von der Fehr et Hansen 2008).

Notable differences can be observed also between different contracts. Based on a study on retail margins in the Nordic countries (Elforsk 2007b) the spot price contracts have been the most beneficial based on historical data and the variable price contracts, which is the default contract, have been the least beneficial in Norway. Some explanations have been suggested for the notably higher variable price contracts. Some suggest that higher prices are a sign of market power (Elforsk 2007b ; von der Fehr et Hansen 2008). It is suspected that suppliers have noticed that the passive segment of customers is fairly stagnant and thus keep their prices higher for these customers. Others estimate that as the default supplier is the local distribution company, the retail supply is not their core business and thus the prices are not very competitive, which creates real incentives for customers to find cheaper offers and switch to a more competitive supplier (KTM 2004b). In addition, the variable price contract have become very volatile, almost as volatile as spot price contracts, but includes higher risks, and thus the prices are not as competitive.

Price discrimination has been noted to exist in the Norwegian market. For instance, the largest supplier in Norway, Hafslund, offers different prices to different customers. They offer slightly higher prices for the customers in their own area, which do not give enough incentives to switch and make better offers in other distribution areas in order to gain new customers (von der Fehr et Hansen 2008).

3.7 Customers in the Norwegian market

Customer activity is essential for a well functioning competition. Fear of loosing customers creates the pressure for suppliers to keep the prices as low as possible. Norwegian customers have been reasonably active in the electricity market. It has been estimated that the net switching rate is about 28% and gross switching rate even as high as 89 %, which is remarkably higher than in most other countries that have introduced competition into the electricity retailing.

3.7.1 Switching

Information about switching rates is collected quarterly from network system operators by NVE since 1997. Therefore the information is rather comprehensive and reliable.[13]

Switching remained very low until 1997 (only about 2500 switches), but after removing the switching fees, the number of switches started to increase, although slowly, as low electricity prices and small differences in prices between suppliers did not give big incentives for customers to switch. In the end of 1998, only about 5% of customers had switched their supplier. The switching rate only peaked to high level during the extraordinary dry year of 2002-2003, which led to low reservoir levels and huge increase of prices. Record level of around 441 000 switches were done during 2003, which equals about one fifth of the Norwegian customers. After this, the switching rates decreased somewhat, but have remained reasonable showing that an active segment seems to exist and be persistent. Annual switching rate in 2006 was 11,5% and in 2007 8,5%, which can be considered fairly healthy level. It has been estimated that at least half of the Norwegian customers have switched their electricity supplier at least once (Vaasan yliopisto 2008). Information about renegotiating is not collected in Norway, but the real activity of consumers is assumably much higher than these switching rates indicate.

Customer activity can be also viewed with the amount of customers with incumbents, which has steadily declined in Norway. Market shares of incumbents between different areas varies largely, from 30% to nearly 95% of customers (NVE 2008a), which is due to several reasons. As mentioned, some small companies offer low prices and thus the customers do not have any incentive to switch as saving would not be possible by switching. In addition, campaigns are often focused on specific areas, and thus the switching rates can differ largely. Altogether 71,1 % of customers are supplied by the dominant supplier within the grid area in 2008 (NVE 2008b). However, amount of customers with incumbents do not reflect the real amount of switching either as some customers might have returned to their incumbent supplier

13 The survey covers only 82,4 % of the customers, but the results are scaled to cover all the country.

and especially these numbers understate the customers activity as they do not indicate the customers who have renegotiated with their current retailer.

Norway have been reported to have the highest rate of re-switching in the world. It is estimated that every customer who has once switched, has done it in average three times (including the customers who have switched back to their incumbent supplier). However, it seems that significant part of this re-switching is switching back to a previous retailer (VaasaETT 2007).

Switching activity is not a stable constraint. Annual and seasonal variations can be noted, especially in the hydro-based Norwegian market with highly volatile prices. Highest customer activity has occurred during the winter months, when the price are typically higher than during summers (VaasaETT 2007).

3.7.2 Factors affecting customer mobility

The behaviour of the Norwegian customers has not been surveyed as widely as the behaviour of the Swedish customers (see following chapter). However, some factors that encourage the switching can be clearly observed. High consumption per household and the resulting share of expenditure used to electricity in the household's budget creates incentives for customers to follow the electricity prices closely and possibly to switch supplier. In Norway the average consumption is very high, around 19 000kWh, which is the highest out of the Nordic countries and partially explains the high activity.

Volatile prices have also been important driver of customer mobility. Price changes correlate with the switching activity quite strongly as can be seen in the Figure 6. During high prices customers become more interested in switching and more aware of the situation, for example due to media attention. This was clearly seen during the price peak of 2002-2003 when about one fifth of the Norwegian customers switched their supplier. Similar situation was seen again in 2006, although the price peak was not as high and only 9% of the customers ended up switching supplier causing smaller peak in the activity than in 2002-2003 (Fosby Livgard 2007).

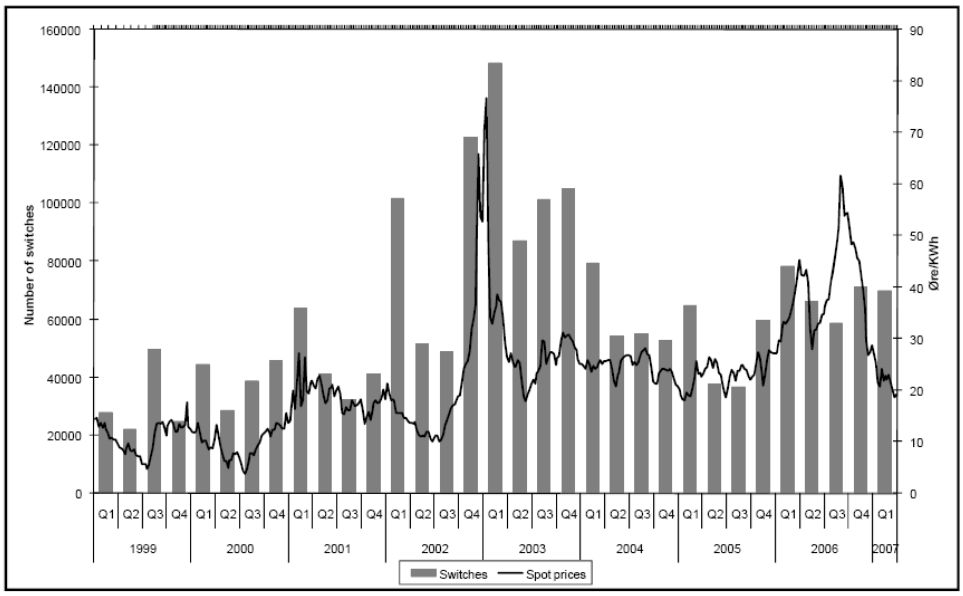

Figure 6: Number of switches per quarter compared to spot price development. (von der Fehr et Hansen 2008)

In addition, switching seems to correlate with the prices difference between the retailers. When the price difference is large, there are more possibilities to save and switching increases. This is presented in Figure 7. This correlates also with the price changes. During quickly changing prices, the retailers prices differ more than during more stable prices.

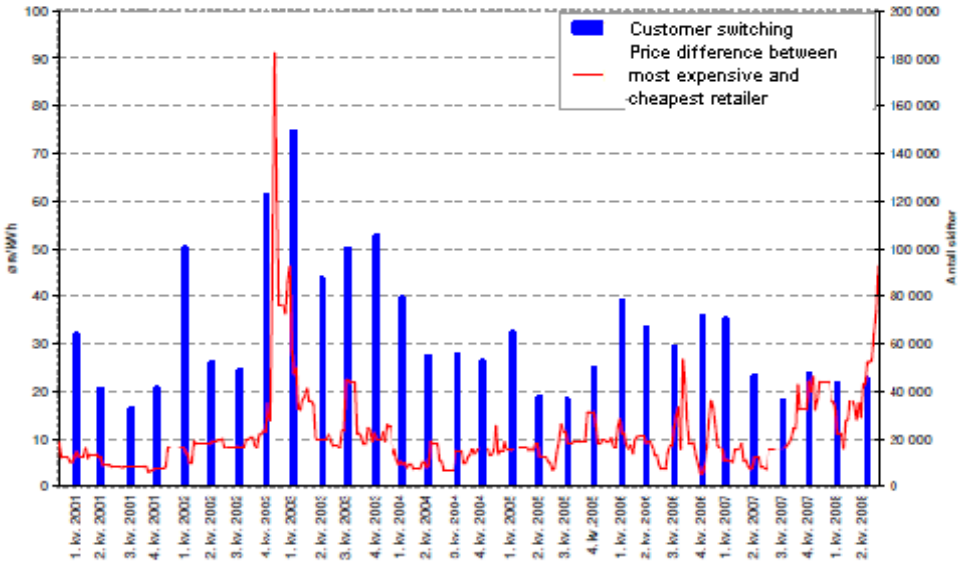

Figure 7: Number of switching compared to the price difference between the cheapest and the most expensive supplier. (NVE 2008b)

Norwegian example is interesting also considering the demand response possibilities of the residential consumers. Often, it is considered that one of the objectives of the market deregulation is to increase the security of supply by signalling the scarcity of electricity all the way to end consumers during the high prices. Sometimes the ability of residential consumers to take part in the demand elasticity is questioned as the possibilities for consumers to reduce electricity consumption are rather weak in the short run (see more in Section 2.4). However, during the price peak of 2002-2003 the consumption of Norwegian consumers lowered significantly as the temperature-adjusted demand of households and part of the industry[14] fell by 7 % over the November-May period compared to the previous year (von der Fehr et al. 2005).[15]

Customers' lack of knowledge was a problem in the initial period of the deregulation also in Norway. It has been estimated that the Norwegian suppliers were not very eager to inform the customers about their possibilities (Fosby Livgard, 2007). According to Fosby Livgard the situation improved in this aspect after the Statoil's entry in 1998. Direct marketing campaigns of Statoil as well as the other retailers' campaigns in response to Statoil's activities, improved customers' awareness and their two active campaigns caused a peak in switching rate, almost doubling it from around 3,5% to 7%. Furthermore, Norwegian authorities have taken measures to improve the customers' awareness, for instance Norwegian Competition Authority has collected and published price information since 1998, which can be considered to improve customers' awareness notably and ease the switching process.

Norwegian power market has surprisingly bad reputation, even though it is considered to work fairly well. Especially after the deregulation consumers' trust towards the electricity sector has decreased significantly. In a survey by TNS Gallup made in 2003 energy industry scored only 31 out of 100, which was the worst out of several industries included in the study, for example pharmacy and cosmetics. It has been surveyed that the reputation of the electricity industry highly correlates with the

14 Other industry than boiler industry and energy intensive industry.

15 Von der Fehr et al. (2005) calculated that this corresponds to a price elasticity of 0.23. Other report (KTM 2004c) states that the residential sector reduced consumption of electricity 4% and that over half of the households reduced the usage of lightning and heating in order to reduce the electricity bill. However, the meters in Norway are read four times per year, which enables better demand response than for example the Finnish system with the yearly meter reading.

price (see Figure 8), whereas other factors, such as information and satisfaction have only slight impact. This lack of confidence is explained by the fact that Norwegian consider their hydro power sources as a richness of the country and as a privilege of the inhabitants, and do not see it as a business to make profit (Fosby Livgard 2007).

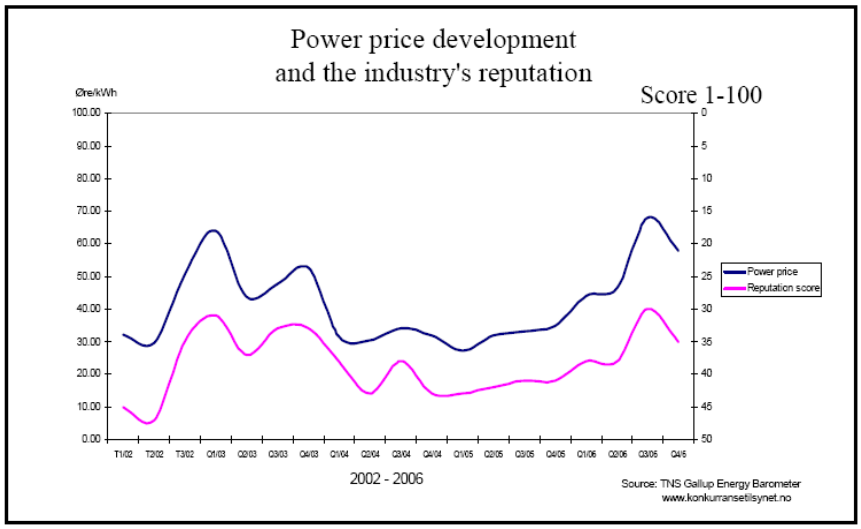

Figure 8: Development of prices and the reputation of Norwegian power industry (the scale for the reputation score is reversed). (Fosby Livgard 2007)

In addition, Norwegian have long traditions and experience of electricity markets, which is estimated to be one of the reasons for their high activity, whereas loyalty stemming from traditions could partially explain the remaining passive segment. It has been surveyed that the loyalty of Norwegian customers towards their local supplier is high, which mainly stems from traditions as the suppliers are regarded as important social institutions, not from satisfaction (Fosby Livgard 2007). According to estimations, over 40% of the customers feel loyalty towards their local supplier.

3.7.3 Choice of contracts

Variable price contract is still the most common contract among customers, accounting nowadays for little less than 50% although the share has been decreasing steadily. From offer contracts, the spot price based contract has been the most popular. Retailers started to offer spot price contracts in a very early stage and

nowadays already more than 40 % of customers have spot price contract. The shares of different types of contracts for years 2002-2008 is presented in Figure 9.

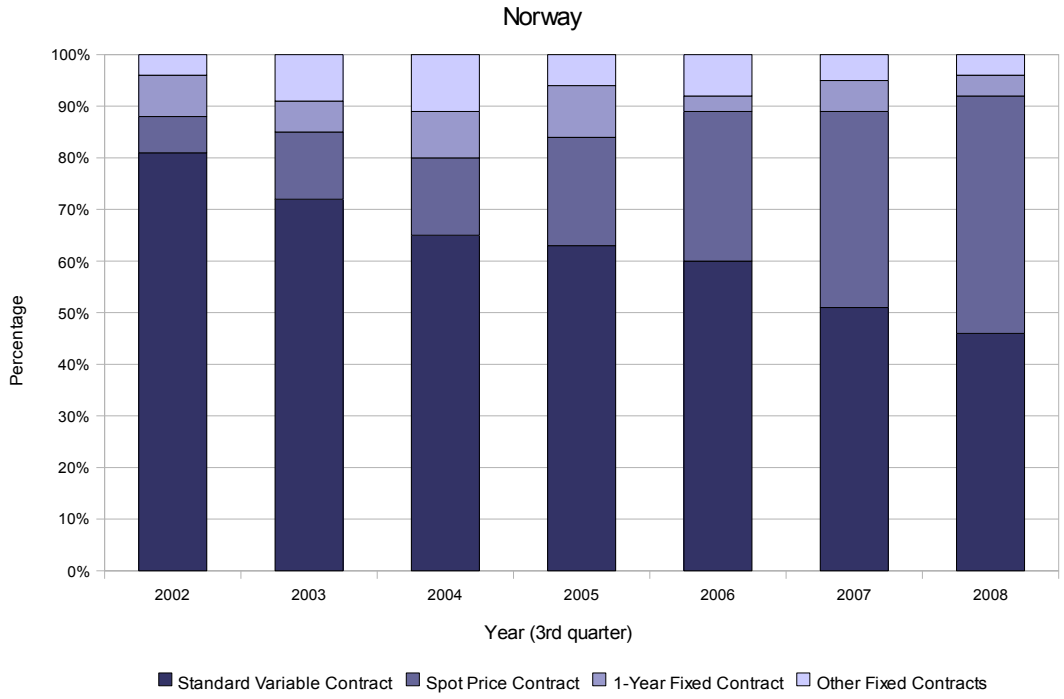

Figure 9: Shares of different types of contracts in the Norwegian market.

There are several reasons for the popularity of spot price contracts or at least many speculations have been presented. First, the spot price contracts are easier and less expensive for retailers to administer and there is no need for risk hedging and thus many retailers have started to offer spot price contracts, some as their main product and some, especially new entrants, even as their only product. Second, the price of variable contracts is changing very often and is very volatile, and thus the pricing reminds closely the pricing of spot price contracts but includes the risk component and is often lagging more during the decreasing prices, making the spot price contract more attractive and clear. Third, it has been said that the Norwegians in general do not like paying for the stability but prefer the floating rates (Littlechild 2006), although cultural differences are unlikely to totally explain the differences as Nordic nationalities are said to be fairly similar in their mentality as well as in other personal characteristics. In addition, the share of spot price contracts has been increasing in Sweden too, accounting now for about 22% (see Chapter 3), which

would be against the differences between national preferences but instead indicate that the differences in the popularity of different types of contracts might be more due to other factors, for instance due to the development and the structure of the market and retailers offers.

3.8 Discussion and conclusions

This chapter aimed to give a comprehensive image of the Norwegian electricity retail market. It was noted that Norwegian retail competition is generally considered well functioning with high activity from both retailers' and customers' side, even though some market imperfections still exist. Especially compared to other countries that have fully opened their retail markets to competition, Norwegian market seems to perform well.

There have already been considerable gains in the Norwegian market. Retail prices have started to follow the wholesale prices to a large extent enabling better demand response, which is important in a hydro based system like Norwegian system is. Prices in average have become more volatile, but the price differences have equalised and the margins are small. Competition in the retail market has stemmed new types of contract forms, processes have developed and price information systems have been developed to increase customers' awareness and to lower the switching and search costs. New organisational forms and new entrants have been seen in the market. Market has become more transparent and the overall image is that the market starts to be fairly mature. High consumption of electricity, aware consumers, volatile prices, reputation of the power sector, long traditions and political role of the electricity sector combined with active retailers have altogether resulted in a rather dynamic market. Some concerns have been raised due to increased market concentration, the situation of passive customers and the lack of sustainable entry, but overall the Norwegian market has shown some interesting developments and is a good example that competition can be rather dynamic also in the residential retail market.

4 Electricity retail market in Sweden

Swedish electricity retail market has also shown reasonable customer activity and the market is often defined as competitive and mature, even though the deregulation commenced few years later than in Norway. This chapter presents the outline of the Swedish market from the similar point of views as the Norwegian market in the previous chapter.

4.1 Background and basic facts

Swedish electricity retail market is the largest market out of the three Nordic countries with approximately 5,2 million electricity customers (EMI 2006b). Like in Norway and Finland the total consumption of electricity is high, approximately 146 TWh in 2006 (EMI 2007b). The level has remained fairly stable during the past years with only slight variations from year to year depending mainly on the outside temperature. Altogether the consumption increased 3,9% between 1990 and 2003 and the slow increase is estimated to continue with a rate of 0,3% annually (SOU 2005). Housing and services stand for around half of the total consumption and industry approximately 40%. Private households consume around 42 TWh. Consumption per capita was 4 416kWh in 2006 (NordREG 2007). Average annual consumption of households is about 10 000kWh, which is in between the Finnish and Norwegian households' consumption. Amount of electricity heating accounts for 30% of all the heating used in the residential sector (Pakkanen et al, 2008).

Generation is mainly nuclear and hydro power, accounting together for over 90%. The remaining 10% is generated using fossil- and biofuel fired plants and a small part of wind power. The total amount of electricity generated in 2007 was approximately 144,6TWh. Importing/exporting of electricity depends on the hydrological situation. In 2007 net imports amounted to 1,3TWh (EMI 2007a). Generation of electricity is very concentrated. The three largest companies have a market share of almost 90% (NordREG 2005).

4.2 Swedish deregulation

Swedish electricity market was opened up to competition in the latter half of the 1990s. The goal of the reform was mainly to achieve more efficient use of production and distribution resources through increased competition and to guarantee secure supply to the customers with lowest possible price (EMI 2006a). In addition, the opening up of the Norwegian electricity market in the beginning of 1990s supported the decision.

From 1st January 1996 all the customers were allowed to choose their retailer, but expensive hourly metering equipment was required. Maximum cost of the meters was around 7000-9000 SEK[16], which negated the possible benefits from switching and therefore the switching was very rare. In 1997 maximum price for the equipment was set to 2500 SEK and finally in 1st November 1999 load profiling system was adopted removing all the fees connected to switching and thereby facilitating switching notably. The main steps of the Swedish deregulation are presented in Figure 10.

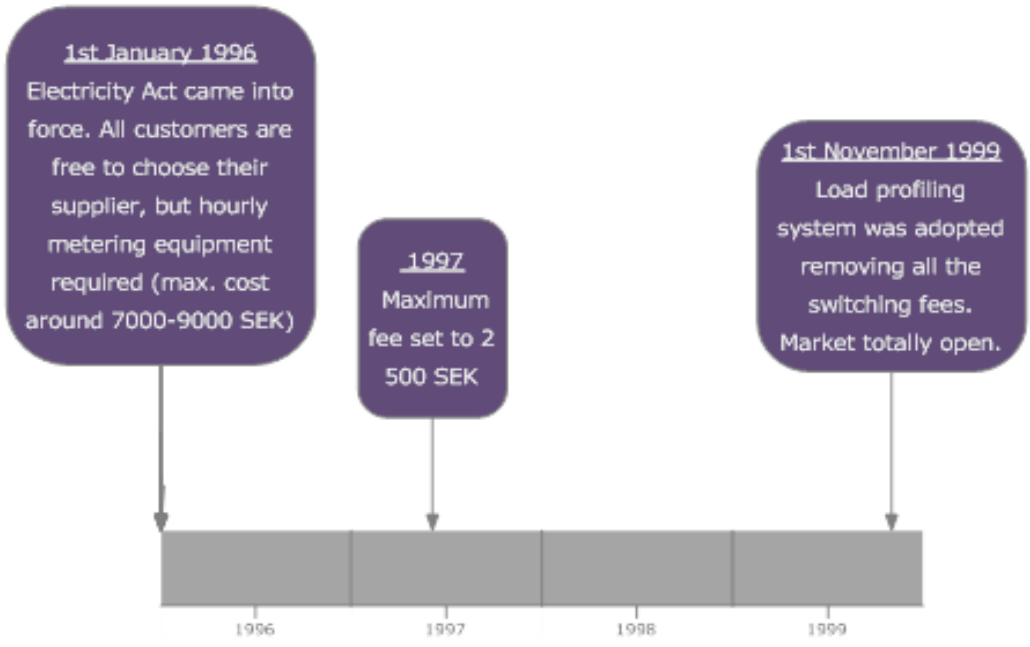

Figure 10: Development of the Swedish deregulation.

16 1 Euro = 10,669 SEK in the early 2009

4.3 Regulation

4.3.1 Regulatory authorities

Swedish electricity market is under supervision of several regulatory authorities, which each have their own area of responsibility. These authorities include the Energy Markets Inspectorate, the Swedish Competition Authority, the Swedish Financial Supervisory Authority, Svenska Kraftnät and the Swedish Consumer Agency (SOU 2005).

Energy Markets Inspectorate (EMI) is the main regulator of the Swedish electricity market. EMI was established on 1st January 2005 as part of the Swedish Energy Agency (SEA) by the government and it became an independent authority within SEA on 1st January 2008. Efficiency and functioning of the energy markets was seen as very important issue and thus EMI was formed to supervise and monitor the energy markets. Their tasks also include to inform public and stakeholders about the markets and other customer related issues (EMI 2007a).

In January 2008 EMI started to maintain a price comparison web service, Elpriskollen[17] (The electricity price guide). The purpose of Elpriskollen is to provide electricity customers an access to up-to-date and consistent information. This service is expected to make it easier for consumers to make active choices in the electricity market and thus to help to strengthen competition. The web page is very comprehensive as suppliers have an obligation to inform their prices and terms (EMI 2007a). Before Elpriskollen, Swedish Consumer Agency maintained similar service since 2001, which was not obligatory for suppliers but was however considered fairly comprehensive as, by rough estimation, 80-90% of offers were posted there (EEE Ltd 2008).

The Swedish Consumer Electricity Advice Bureau is an independent bureau formed in spring 2002 by Swedish Consumer agency, Swedish Energy Agency and the branch organisation Swedenergy. Bureau provides information and guidance to

17 www.elpriskollen.se

consumers on various matters connected to electricity market free of charge. Straight after the market opening, authorities did not pay much attention to the supply side and informing of customers was rather minimal. The Swedish Consumer Electricity Bureau was created when this was noticed. It has been reported that the establishment of this bureau have had positive impact on the level of customer mobility and competitive activity (KTM 2004b).

4.3.2 Regulation of the retail market

Regulation of retail electricity market in Sweden is light, although fairly effective. As described above, there are several authorities, which all aim to improve the market in their own area of responsibility, but the actual regulations concerning the retail market are light, aiming just to create the basis for competition without unnecessary rules and restrictions. There is no end-user price regulation nor supervision of these prices. Competition between suppliers acting on a free market is expected to keep the prices reasonable. Network tariffs are supervised by EMI as the network distribution companies are still acting in a monopoly position.

Regulation concerning the *default supplie*r is organised in a quite similar way as in Norway but lighter than in Finland. Obligation to supply, which is still in use in Finland, was abolished in 1999 when the load profiling system was introduced (EEE Ltd 2008). Nowadays customers who have not switched are assigned a retailer, called default supplier, by the local network operator. This default supplier is usually the large, historical retailer in the area. The default contract for the passive customers is variable price contract, often in Sweden called contract with conditional tenure, which is usually more expensive than the offer prices, creating more incentives for customers to switch.

Separation between distribution operators and retailers is effective as legal separation has been required by law already since 1996 and the rules were further tightened in 2005 for companies with over 100 000 customers. Ownership separation is not required. This unbundling requirement, which is stricter than in Norway, has efficiently restricted cross subsidization between distribution and supply, but on the

other hand it has been estimated to increase the integration between retailing and generation (Johnsen et Olsen 2007). Separation between generation and supply has been widely discussed during past few years, as the independent retailers have raised doubts that this type of vertical integration harms competition and sets the independent retailers in an unequal position. Suppliers with own generation are suspected to reduce their margins to anti-competitive level and to compensate that by increasing the margins in generation, or, these vertically integrated companies could complicate the procurement of independent retailers. Unbundling of generation and supply was researched by EMI in 2007, but they concluded that the separation would have more negative impacts than positive impacts, if taken in use only in Sweden (EMI 2007c).

Switching procedure is considered quite well functioning, but as in Norway, there are some limitations connected to the process. Switching is only possible on the first day of each month and the notification must be done at least one month in advance and therefore, the process takes usually fairly long, from one to two months. Some complaints have been raised about network operators favouring local suppliers, especially in the beginning of competition. In addition, problems in communication and metering were common in the early years, but the situation has improved notably since.

Regulations concerning changing of prices are also similar to the Norwegian system but lighter than in Finland. Standard variable price changes must be announced 15 days in advance and a public notification, for example in a local magazine, is sufficient.

4.4 Price development

One of the expected result of opening up the market to competition was decreased electricity prices for the end customers. Electricity prices as well as the margins have continuously been higher in Sweden than in Norway and Finland. Taxes especially are exceptionally high. Taxes have increased since 1996 almost by 170% (EMI 2006b). The total price of electricity has increased during the past ten years

significantly due to increase in electricity costs, electricity certificates and taxes. All in all, the total nominal price of electricity to a typical end-user in apartment has increased about 56% between 1996 and 2005 and for customers living in a house with electricity heating even more. The price of electric energy itself has increased for customers with low consumption about 71% (EMI 2006a).

Swedish household's total cost of electricity consists of four same parts as Norwegian and Finnish household's price, that is, electrical energy, network tariff, electricity tax and VAT, but in addition Swedish customers have paid for electricity certificates since May 2003 (EMI 2006a). In 2007 the electricity certificates were transferred from electricity users to electricity suppliers and are nowadays included in the price of electricity in the bills, instead of separately marking them in the bill. The shares of different parts have varied quite largely due to the big differences in taxes and as can be seen in the Figure 11. Currently the share under competition, i.e the price of electrical energy stands for over 40% of the total bill for a customer with an annual consumption of 20 000kWh. Network tariffs have remained fairly stable.

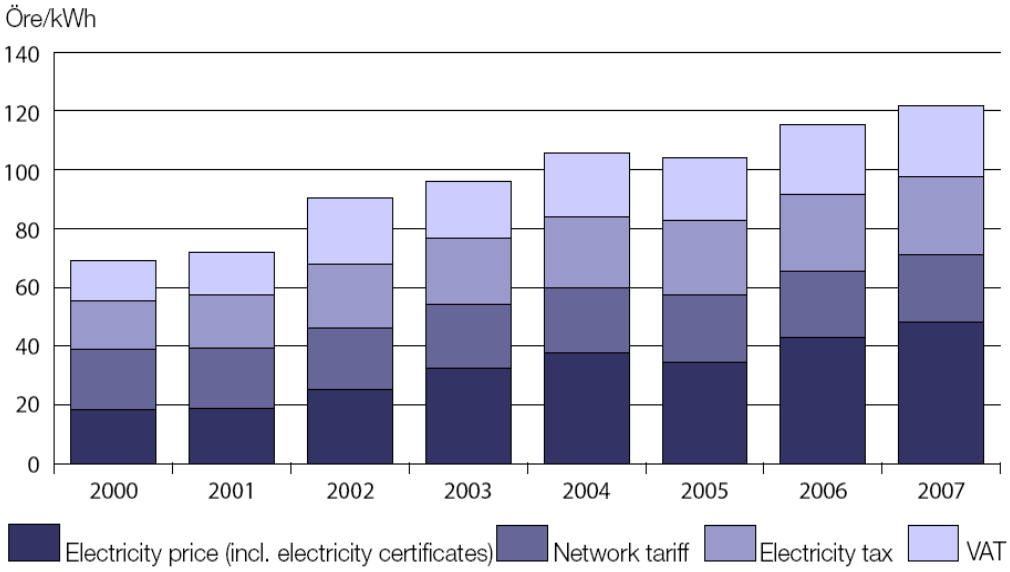

Figure 11: Composition of the electricity bill for a household customer with annual consumption of 20 000 kWh.(EMI 2007a)

Before 2000 the retail price variations were only slight as the correlation between retail and wholesale prices was weak. End-customer price decreased slightly after competition started, but after the wet year of 2000, the prices started to increase.

During the exceptionally dry year of 2002-2003 the retail prices peaked sharply also in Sweden, although not as much as in Norway. After the peak, the prices seem to have stayed in a higher level.

Retail prices increased again for all customer categories between 2005 and 2006. This increase was partially due to the low water flows in the spring and due to the dry summer, which forced the prices up in the spot market in the early autumn. Increases in the price of emission permits also affected the retail prices. The average increase for household customers was around 13%.

In 2007 the prices decreased again when the situation in the wholesale market improved, but have risen again in the first half of 2008. The development of the retail electricity prices is presented in Figure 12.

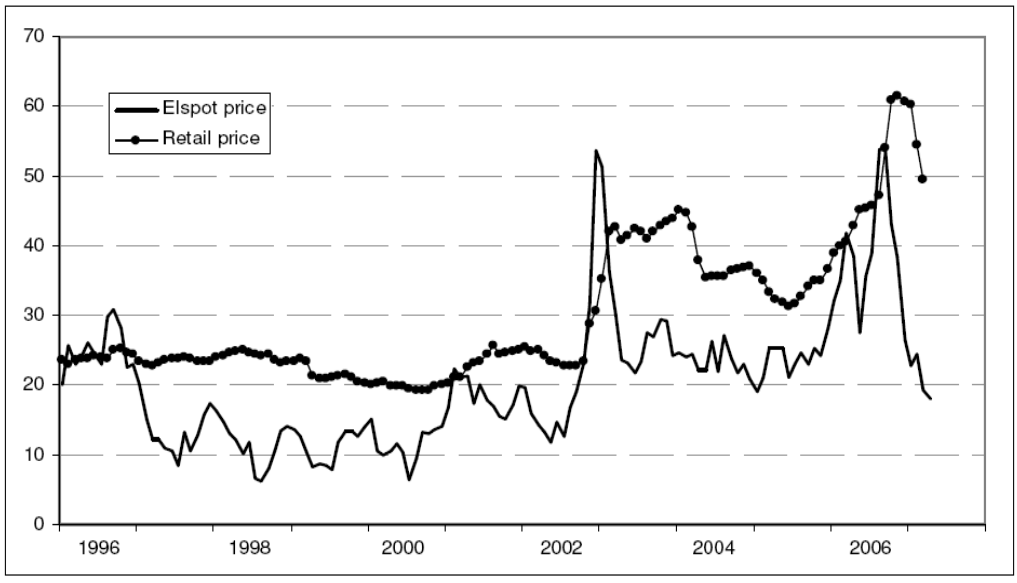

Figure 12: Development of retail electricity prices in Sweden in comparison with spot price development, øre/kWh. (Johnsen et Olsen 2007)

As can be seen in the Figure 12, the correlation between spot price and retail price in Sweden is much weaker than in Norway but stronger than in Finland (KTM 2004b ; Johnsen et Olsen 2007). Figure 12 also shows clearly the large margins, which appeared to increase notably after the price peak of 2002-2003. This increase can be partially explained by the introduction of the electricity certificates and some other reasons[18], but still they remain surprisingly high.

4.5 Market structure

After the deregulation the Swedish market has experienced a rapid restructuring of the electricity supply industry mainly through merges and acquisitions. Like in the other Nordic countries the concentration has increased but remains still lower than in the wholesale market (EMI 2006b). Traditionally the major generating companies had rather small shares in the retail market, but after the market opening some of them started actively growing their market shares also in the retail side by acquiring smaller utilities, mainly municipalities. In 1996 there were around 220 suppliers and by 2007 the number had decreased to around 115 (EMI 2007a). Especially the number of independent retailers and municipalities has decreased, from 100 to around 15 and from 143 to 56 respectively (SOU 2004). The biggest three companies have increased their market share from about 30% in 1996 to around 50% in 2006 (EMI 2007). However, the concentration remains still lower than in the wholesale market. Out of the 115 current electricity retailers, about 96 operate throughout Sweden (NordREG 2008b).

There are no straight barriers to entry in the Swedish market. No licence is required to act as a retailer. Companies are just required to pay taxes and to have a balancing agreement. There has been some new entry, especially foreign ownership has increased in the market, from around 10% in 1996 to almost 40%. Foreign companies can be divided into two main groups. The major incumbent companies have in principle reached to the Swedish market by acquiring existing companies and now two of the big three suppliers in the market are foreign companies (Finnish Fortum and German E.On). There have also been foreign companies that have tried

18 See more in 4.6.3.

to establish themselves organically. This has proved to be a relatively demanding approach and as a consequence some of these companies have later left the market (SOU 2005).

In addition to these foreign companies, some independent retailers have entered the market, although it has turned out quite difficult for independent retailers without own network and production to compete with the vertically integrated companies and thus, many retailers have already left the market, for example the two petroleum companies OK and Statoil. Some entrants, however, still exist in the market and have been fairly successful. One good example is Kraft & Kultur, a subsidiary of Norwegian utility, which started their operations in the Swedish market in 2002. Kraft and Kultur sells only renewable energy and targets customers through cultural organisations and happenings. Another successful entrant has been GodEl, who has also different type of approach as they give their profit to charity. On the contrary to these new retailers aiming to find additional methods to compete, some new entrants highlight the simplicity – only electricity, nothing else. For instance Energibolaget i Sverige highlights that they are not one of the "giants" nor a special retailer. They focus their marketing for small consumers living in apartments. They have managed to expand rather rapidly and was estimated to get around 5 000 – 6 000 new customers monthly in 2006 (NordREG 2006b). Another example of simple approach is German entrant Yello Strom, which entered the Swedish market in autumn 2007 with high expectations. They base their marketing on the easiness and simplicity and try to create a strong brand like they have in Germany.

4.6 Retailers' strategies and activities

Majority of the Swedish electricity suppliers are rather small municipal companies. As described earlier, the three largest companies have achieved a dominant market share in the retail market by acquiring small municipalities. Only these three have market share greater than 5%. Most of the still existing municipal retailers have adopted rather passive strategy. They do not even try to grow or gain new customers, but instead they concentrate keeping the customers of their own distribution area.

This has turned out to be fairly successful strategy especially for very small suppliers with loyal customers.

However, even though many of the municipalities sold up their sales operations to bigger companies and many of the remaining have not adopted competitive strategies, there are some municipalities who want to grow and compete. They have aimed to grow through acquisitions like the large companies, but they have also been notably innovative and managed to gain new customers by offering good contracts.

Initially competition was mainly driven by this type of smaller municipal companies and to some extent by new entrants. In the early years of market opening the bigger companies were fairly passive and did not start to make offers as eagerly as the smaller ones and they were reported to have highest prices still during 2003 (Littlechild 2006). Later on, the large suppliers have changed their strategies. Partly they started to cut their prices as a response to increased competition, but mainly it seems that the pushing factor was the bad reputation that these large companies suffered from. Customers were dissatisfied with their high prices and bad service and in addition, the outages in supply increased their bad reputation. Wide media attention and competitors' straight campaigns with their expenses boosted their bad reputation even more. The smaller retailers efficiently used the bad image of the three "giants" even in marketing campaigns.[19] As a response, they were forced to change their strategies, improve their customers service and lower prices. In mid 2005 they were reported to have about average prices instead of being the most expensive (Littlechild 2006) and later on they have been even the most competitive. For instance, at the moment Vattenfall promises to be the cheapest for three year fixed price contracts and are ready to match any retailer's offer.

First active retailer in the Swedish market is reported to be municipal utility, Telge Energi, who started to offer fixed price contracts already before the hourly meter requirements were abolished (Littlechild 2006). They offered meters for the customers who switched. It has been estimated that the margins were so generous in

19 For example one campaign of a smaller retailer illustrated the three large retailers as giants living at the top of a hill and dominating the little people in the valley below.

the Swedish market making this possible while still undercutting the incumbents prices (EEE Ltd 2008). After the metering requirements were abolished competition started more widely, but Tegle Energi has continued to be very active and is often considered to be the most active supplier in the market along with the three big ones (Littlchild 2006 ; EEE Ltd 2008).

4.6.1 Types of contracts and innovations

Nordic countries have had fairly wide range of different types of contracts after the market opening. In Sweden there are also three types of basic contracts like in Norway (see chapter 2); variable price contracts (with conditional tenure), flexible (spot) price contract and the fixed price contracts. In addition to these three, one new type of contract has started to become more common, mixed contract. In mixed contract part of the consumption is tied to a fixed price and the rest to a floating price.

Environmental aspect is quite important in Sweden. There are several types of environmental contracts already available and the popularity is still increasing. Some of the retailers, for instance Kraft and Kultur offer only green electricity, and the market has enlarged and developed fast during past few years. For example Telge, one of the most innovative retailer as described, has started to only offer renewable energy.

4.6.2 Marketing

Several types of marketing have been seen in the market, although nothing has been very systematic and wide scaled. After competition became feasible for smaller customers, several campaigns were done, some advertising in the newspapers, posters in metro and even some TV campaigns. Later on, telemarketing has become fairly popular. Also, different types of co-operations with different organisations are common, which aims to target more focused customer groups, for instance Kraft & Kultur approaches their customers through cultural organisations.

4.6.3 Price setting

Margins in Sweden have remained fairly high (KTM. 2004b ; VTT 2008), higher than in Norway and Finland. Various explanations have been presented. It has been estimated that the cost of retailing business was underestimated in the beginning (Amundsen et Bergman 2006). Between 1999 and 2001 margins were lower and the retail segment was not profitable, which caused several new entrants to exit the market. Especially it seems that the volume and price risk have been more costly than expected and thus later on, the retailers have been able to increase the margins without a threat of new entrants. EMI on the other hand estimates that the consistently higher margins in Sweden could be due to differentiating costs in terms of the respective markets or differences in the competitive pressure. They bring up two significant cost differences between the markets, the balancing system and the administrative handling of the companies' end-users and expansion of customer service functions (EMI 2006b). Moreover, difficulties of new companies to enter the market can partly explain the higher margins and has led to suspicions of exploiting the market power. In a perfectly competitive market, higher margins would work as an incentive for new entrants to enter the market, which is supposed to lead to increased competition and decreasing margins under competition. The higher margins compared to other Nordic countries and especially the sudden increase in the margins after the price peak of 2002-2003 can in addition be partially explained by the introduction of electricity certificates.[20] On the other hand EEE report (EEE Ltd 2008) estimates that as in the 1990s the retail margins were very generous, even so large that Telge could afford to offer metering equipments to new customers and still to undercut the incumbents' prices, there must have been some benefits from competition to customers after introduction of profiling in terms of decreased margins.

Prices vary between customer types and between contract types. In general, small customers have higher prices compared to larger customers and customers with default contracts pay often significantly more than customers who have switched.

20 Certificates have cost around 150-250 SEK between 2003 and 2007 and the required quota (required proportion of sales) have been around 7,4-16,3 % of sales (SEA 2008), which thus stands for about 30 SEK, meaning that the certificates could explain about one third of the margins.

This has led to suspicions that Swedish retailers are exploiting market power towards their passive customers as the prices of variable price contracts, which is the default contract for passive customers, have been consistently higher than prices of other contracts (Amundsen et Bergman 2007). However, it has been estimated that the price difference between active and passive customers have somewhat decreased over time (Elforsk 2007b).

4.7 Customers in the Swedish market

Swedish customers have been rather active compared to customers in many other deregulated markets as it is estimated that well more than half of the customers have switched supplier or contract type. Customers' behaviour in the Swedish electricity markets has been researched by several studies rather extensively. For example (TEMO 2004 & 2005), (Gamble et al 2007) and (EMI 2006a) have tried to analyse the customers' behaviour based on several factors.

4.7.1 Switching

In Sweden the switching rate data has been collected straight from DSOs by Statistics Sweden since 2004 and through occasional surveys and questionnaires by branch organisation Sweden Energy. Some estimations of the number of renegotiated customers is also available.

Switching supplier remained fairly low until the switching fees were abolished in 1998 but has increased steadily since then. In 2000 already 10% of customers had switched supplier. In November 2005 it was reported that just over half of the customers had at some point switched supplier or renegotiated their contracts and in the end of 2007 the gross switching rate was estimated to be at least 40%. Also annual switching rates have been in a reasonable level, 7,7% in 2006 and 9,5% in 2007.

Whereas Norwegian active customers are estimated to switch in average 3 times, Swedish customers have mainly switched only once. In 2004 62% had switched once, 26% twice and 9% three times or more (TEMO 2004).

Switching activity seems to follow similar cyclical form as in Norway, highest switching being in January as during the wintertime the prices and the consumption of electricity are generally higher, thus giving more incentives for customers to switch. Also, many of the contracts expire in the end of the year, causing partially an increase in the switching rate, which is due to the timing of the deregulation. Requirements for hourly meters were abolished in the end of the year, after which most of the customers have chosen fixed price contracts, which still might cause a peak in the switching rates in January (EMI 2006a).

4.7.2 Factors affecting customer mobility

In Sweden, there have been attempts to survey the customer behaviour more detailed and to define the characteristics that affect the customers' mobility. Surveys made by TEMO survey (2005) revealed for example that customers in the big cities are more likely to switch supplier than in other areas. On the other hand, customers in the rural areas are more likely to renegotiate with their current supplier. Another observation was that consumers with higher consumption are more active than customers with low consumption. Thus, especially households with electricity heating are more likely to switch as expenses connected to electricity are higher. About 63% of single-family house customers have switched supplier or renegotiated their contract, whereas corresponding figure is only 42 % for customers living in apartments.

Increased activity usually stems from high electricity prices and increased activity among electricity retailers. Switching rates in Sweden show little bit similar trends as in Norway, for instance during the price peak of 2002-2003 switching increased, although not as much as in Norway. Thus it seems that Swedish customers are not as price sensitive as Norwegian, which might in part stem from the weaker correlation between the retail and the wholesale prices. In addition, some more particular factors have caused switching peaks. For example, a peak in the switching rate in April 2005

was estimated to be due to a big storm, which caused several outages and increased customer satisfaction and cause increased activity among customers (EMI 2006a).

Swedish electricity customers have also rather low confidence in the electricity industry according to some studies. In 2004 the electricity sector got 57,5 points out of 100 in the Swedish quality index survey, which measures the popularity of different goods and services. A survey of TEMO in 2005 confirmed the low level of customer satisfaction as according to their questionnaire, 41% of the consumers were negative to the electricity industry. Furthermore, the situation still remained worrying in 2006, when according to a poll customers continued to be less satisfied with their electricity retailers than with most other products and services that are studied in Swedish quality index. Especially the large companies still continued to have bad reputation. TEMO's survey from 2006 showed that the amount of negative customers had even increased, to about 50% (EMI 2006). This reputation of retailers have clearly driven competition. Especially large companies have suffered from bad reputation and at the same time active smaller ones have managed to gain sympathy of consumers.

4.7.3 Choice of contracts

The contracts for passive customers, the standard variable contracts with conditional tenure, are generally more expensive than the other contracts. The most popular offer contracts have been fixed price contracts, which were also the retailers' first method to compete. There are some differences in the popularity of different type of contracts over the time. It can be noticed that when the prices are high, longer contracts are more popular and when the prices are low and are still expected to decrease the shorter contracts are more popular. The range of contract lengths offered is wider than in Finland, varying between three months and five years. In addition to these three common contract types, new contractual forms are increasing in the market, especially mixed price contracts, where a certain percentage of customer's consumption is tied to a fixed price and the remainder to a variable price (EMI 2007a).

The number of customers on default contract has decreased steadily and still continues to decline. In summer 2008 approximately 36% of Swedish customers had such contracts. Thus default contracts still remains the most common form of contract. One and three year contracts have been the most popular offer contracts, although the spot price base contracts have become increasingly popular during the past couple years. In summer 2008 already over 20% of customers had spot price contracts, whereas about 15% had one year fixed contracts and 18% had 3-year contracts or longer. Thus, the spot price contract is the most popular contract at the moment and most probably is going to continue increasing its share based on its steadily increasing trend. The distribution of contract types in the Swedish market is presented in Figure 13.

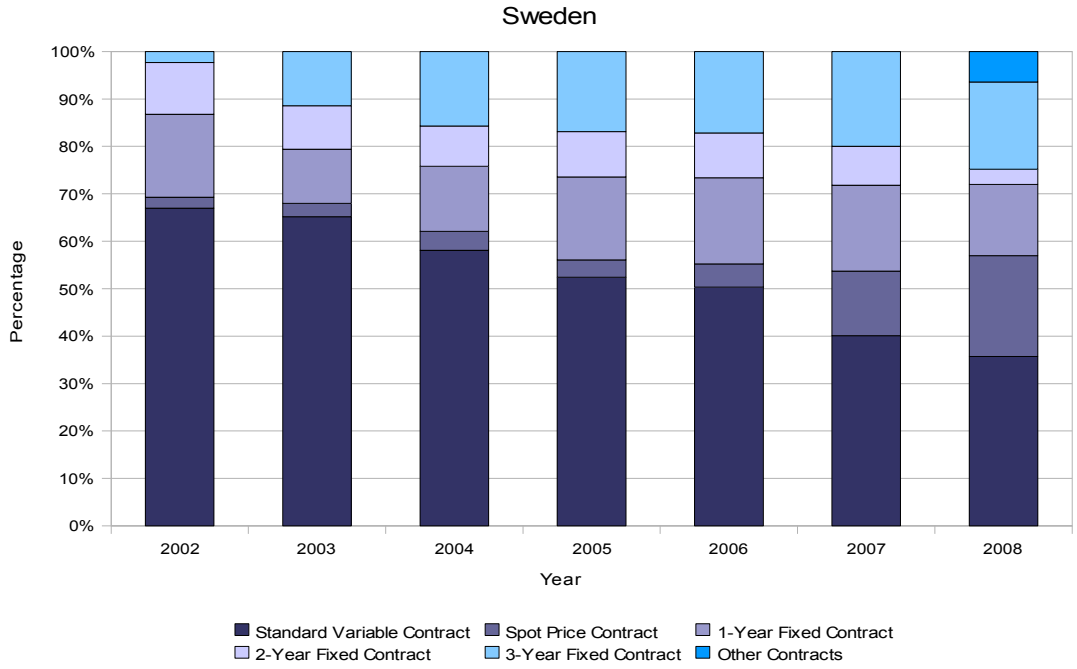

Figure 13: Shares of different types of contracts in the Swedish market.

4.8 Discussion and conclusions

The Swedish retail market performs relatively well with rather active retailers and consumers. The switching rates are reasonably high, several new companies have entered the market and the retailers have made efforts to acquire new customers. As in Norway, competition has been driven by several factors. Combination of bad reputation of the big retailers and the activity of smaller ones, rather high

consumption of electricity, improved customer information, price changes and price differences between the suppliers have created movements in the market.

However, even if the Swedish market is often considered as a competitive and active market, the margins have remained surprisingly high. This could cast some doubts, whether competition is truly efficient, although, as the margins in retail electricity are nevertheless rather small, bigger concerns have not been raised. On the other hand, these higher margins and dynamic competition makes the Swedish market appear rather tempting for new entrants, which keeps the market in move and can maybe prevent very high increases in the price.

5 Electricity retail market in Finland

Based on the previous literature, the Finnish electricity retail market has turned out to be the least competitive out of the three Nordic countries with rather passive customers as well as retailers. This chapter discusses the Finnish retail electricity market from the same point of views as the Norwegian and Swedish markets in the previous chapters.

5.1 Background and basic facts

The Finnish electricity market contains around 3,1 million electricity customers: 2,8 million households and farms, 200 000 service customers and 30 000 industrial customers (KTM 2004a). Consumption of electricity has increased steadily since 2000 and was slightly more than 90 TWh in 2007. Consumption per capita is internationally compared high due to the cold weather and large energy intensive industry. Industrial sector uses around half of the electricity, household and agriculture one fourth (~22TWh) and services and the public sector around 20 %. In average households consume around 7 000 kWh per year, which is significantly above the international average but less than in Sweden and especially in Norway mainly due to different share of electric heating, which stands for about 22% in Finland (Pakkanen et al. 2008). Flats consume typically 2 000 kWh per year and electrically heated houses between 18 000 and 20 000 kWh annually.

Production of electricity is varied. In 2007 approximately 25 % were produced by nuclear power, 29% by combined heat and power production (CHP), 15% by hydro power and approximately 16% by coal based and other conventional condensate power. Finland is also relatively dependent on electricity imports mainly from Norway, Sweden and Russia. In 2006 imports accounted for approximately 14 % (EMV 2008a).

5.2 Finnish deregulation

The deregulation of the Finnish electricity supply market started in the latter half of the 1990s. The reform was motivated by similar objectives as in other Nordic markets, reliable supply with low prices to end customers and more efficient power system. Development was strongly encouraged by the simultaneous development in the other Nordic countries.

Electricity Market Act was introduced in Finland in 1st June 1995 and it was applied since 1st November 1995. After this date, large customers with consumption over 500 kW were free to choose their retailer. During next three years the deregulation took place in stages. Since 1st January 1997, all electricity users were able to freely select their electricity supplier, but hourly metering equipment was required, which hindered the real competition. 1st September 1998, the expensive hourly metering requirements were replaced with load profiling system and competition became feasible also for the household customers. However, the switching was totally free only for the first time switchers. Customers switching again had to pay for the extra metering reading. Since September 2003 the customers have been able to switch supplier once a year without this extra metering fee, which was an improvement for the customers' situation, but it still remains more restrictive than in Sweden and Norway. Development of the Finnish electricity market is shown in Figure 14.

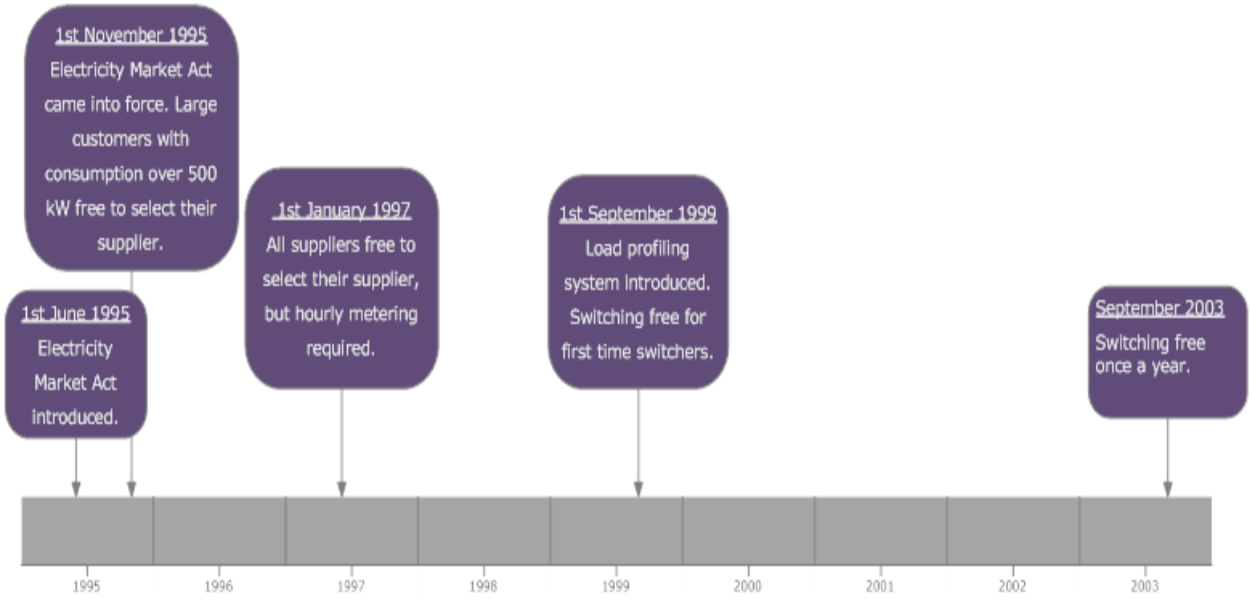

Figure 14: Development of the Finnish deregulation.

5.3 Regulation

5.3.1 Regulatory authorities

An important role in the regulation and supervision of the Finnish retail market has the Energy Market Authority (EMA, formed in 1995), which is an independent agency under the Ministry of Employment and Economy. As EMA is a very small regulation body in the European scale and they have several tasks related to the energy markets, they have limited resources to concentrate on the retail side of the electricity market. During the first years after the market opening their role was quite minimal. Competition was let to develop by itself and as it turned out that competition did not develop as expected, some concerns were raised about the limited role of regulation and especially the availability of information. Since then EMA has been paying more attention also to the retail side and have done various steps to encourage competition. The tasks of EMA include supervising and encouraging competition and especially supervising the obligation to supply prices.

In February 2006 EMA launched an internet-based price calculator.[21] This was a big step towards better customers' awareness. In this service customers can also see statistics of retail prices. It has been very popular since the opening with more than 3,2 million searches by 2008, but the effect on customers' activity is difficult to estimate. Before this official web service, there were some commercial price comparing services, but as suppliers had no obligation to inform prices, they were not very comprehensive. Other recent actions of EMA include better collection of information. EMA started to collect the offer price data in 2006 and switching rate information in 2007.

In addition to EMA, Competition Authority and Consumer Authority have an active role in the retail market. Competition Authority for example supervises company merges and Consumer Authority takes care of customers' benefits.

5.3.2 Regulations of the retail market

Like in the other Nordic countries, the regulation of retail market in Finland is rather light. However, the Finnish market has some regulatory arrangements, such as obligation to supply, extra metering fee and the regulations concerning the price changes, which makes the market stiffer than in Sweden and Norway.

According to the Electricity Act, the supplier who has the biggest market share in the distribution area, has an *obligation to supply,* which means that these suppliers have to provide electricity to customers who have not switched their supplier. These publicly available obligation to supply prices are not regulated, but have to be reasonable and can be inspected *ex post* by EMA. Obligation to supply was originally meant for the transition phase, to protect the supply of electricity to the customers. At this point of the market development, after ten years since the full market opening, it can be questioned whether it is useful anymore. In fact, obligation to supply has more of a moderating effect on competition at its current form. It creates passivity as customers are not obliged to make any effort to get electricity in reasonable price. Obligation to supply also sets the retailers in an unequal position.

21 www.sahkonhinta.fi

Problems might be created when suppliers are obliged to take customers back with fairly short notice. This obligation to take customers back combined with the strict price changing rules (described below) is particularly difficult for retailers. In 2005 the rules were changed to apply only consumers whose main fuse is maximum 3x63A and annual consumption is maximum 100 000 kWh. There has been discussion about abolishing or changing this rule, but at present no change has happened.

In addition, the obligation to supply might be difficult for the suppliers due to the current load profiling method. On the one hand, load profiles were indented to be designed to favour the retailers with obligation to supply in order to make sure they would not cause disadvantages for incumbents and the profiles have been criticised to be too difficult for new entrants. On the other hand it has turned out that, in fact, the system can be unprofitable and harmful for the ones with an obligation to supply as the current load profiles can transfer a major part of procurement during the high prices on incumbent supplier, whereas the competitor ends up paying less.[22]

Another regulatory rule that in part hinders competition, is the *rules concerning the price changes*. Price increases have to be informed to customers one month before personally. This makes the changing of prices expensive and unnecessarily difficult and as a result weakens the correlation between wholesale prices and end-user prices.[23] Later, EMA has specified that the rule applies only to price increases. Price decreases can be done without informing customers personally as it does not harm them (EMV 2007).

Customer switching process is simple just like in Norway and Sweden. Customers only need to contact the new supplier. However, the switching rules are more

22 This probably depends on the area, customer base and other factors, but according to a survey, a retailer in the area of south Finland with an obligation to supply experienced losses due to the load profiling system (Peltonen 2008).

23 This on the one hand is often considered as a sign of inefficiency, but on the other hand, as will be seen later, these rather strict rules have resulted in a different type of product in the Finnish market, which is in fact rather good for consumers. Thus the correlation between the retail and wholesale prices cannot be used as the only indicator to measure the level of competition.

restrictive. Customers can only switch for free once a year.[24] If last supplier switch took place less than one year ago, DSOs can charge an extra metering fee, which can work as a barrier to switch. However, it seems that this fee is not always collected (Olsen et al. 2006). Switching itself takes usually around one month.

Since the beginning of 2007 legal *unbundling of supply and generation operations from network operations* has been required for DSOs with annual transmission of more than 200 GWh[25], but some smaller companies are also legally unbundled. In June 2008, altogether 50 companies were legally unbundled (EMV 2008a). Other unbundling requirements are presented in Figure 15.

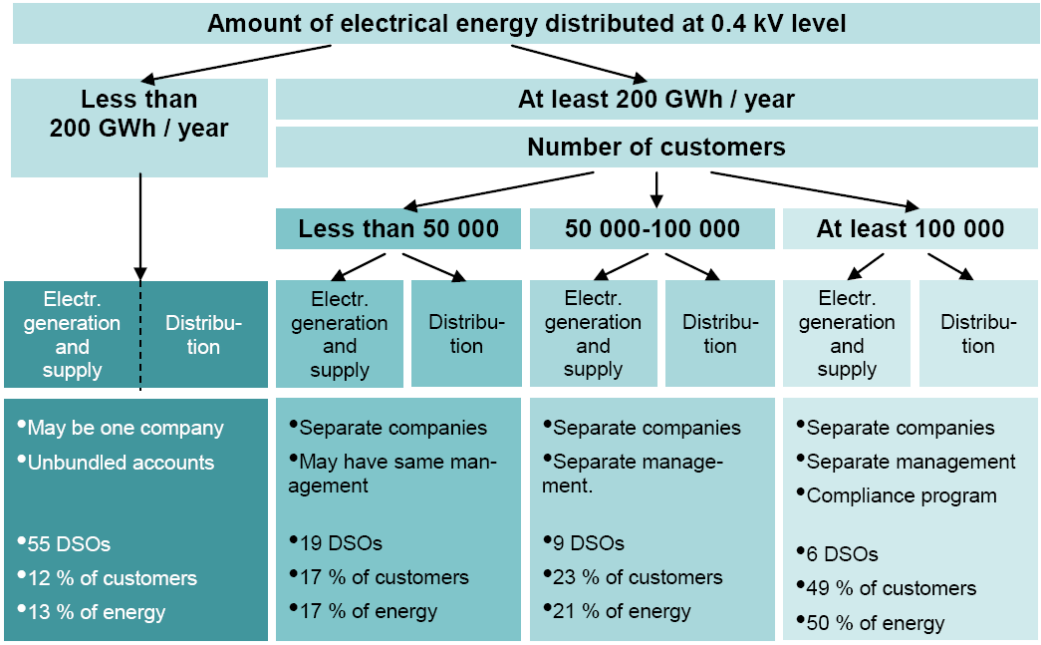

Figure 15: Requirements for unbundling of electricity business activities. (EMV 2008a)

In addition, some problems are connected to the billing. The customers who switch supplier will receive two bills instead of one. Some customers might consider this as a barrier to switch, but as it is the same in all the three countries, it cannot explain the differences in the customer activity and in addition, according to a customer survey

24 This rule only took place in 2003. Before that, switching was free only for first time switchers, which might have hindered the activity in the early years.

25 This threshold value corresponds to about 20 000 customers, which is significantly lower than what the directive requires.

made in 2005 most of the customers do not see double billing as a significant barrier for switching (ET 2005). Moreover, the electricity bills in Finland are very complicated and are required to include lots of different information (Selikare 2004), which might confuse the consumers and make electricity markets and switching supplier seem difficult and complicated. In the other Nordic countries there are not as strict regulations concerning the content of the electricity bills (NordREG 2006a).

5.4 Price development

In Finland, electricity prices have traditionally been quite low in comparison with other European countries. One of the most significant objective of the retail market opening was to guarantee cheap prices to end-customers. However, after the market opening the average price development has been mainly increasing instead of decreasing due to several reasons, such as increasing generation costs and during the past years the costs of emission permits. The retail price development for variable price contracts compared to the spot price development is presented in Figure 16.

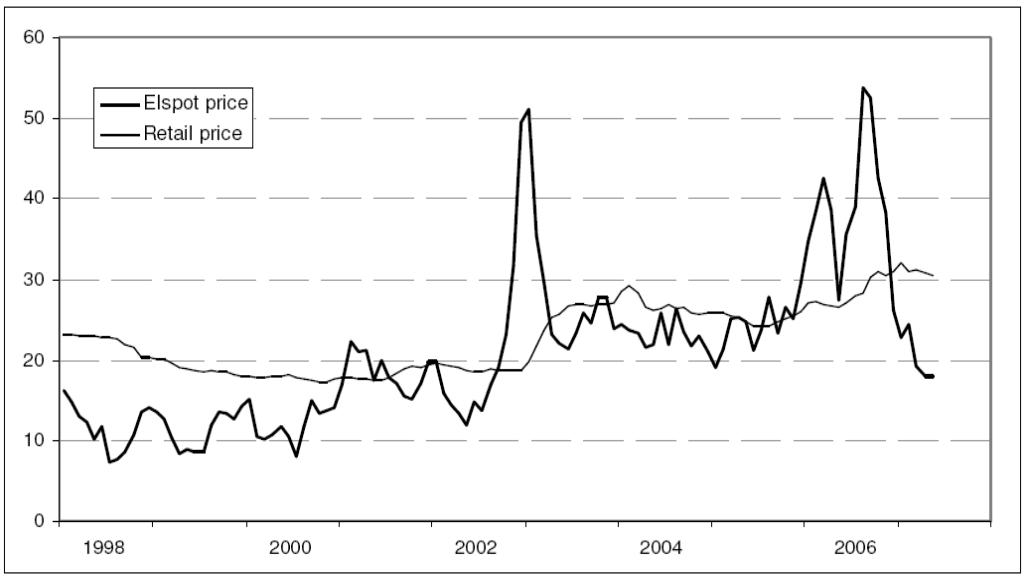

Figure 16: Development of retail electricity prices in Finland in comparison with spot price development, øre/kWh. (Johnsen et Olsen 2007)

After competition became feasible also for the household customers the end-user prices decreased significantly. The hydrological situation in the Nordic market was

good at that time, which in part impacted the decrease, but more importantly, the retailers prepared for competition by lowering their prices to minimize the customer losses and few suppliers did so even to gain more customers. The decrease in 1998 was about 10-17 % depending on the load profile group.[26]

This decreasing trend, although more moderate, continued until 2001 partly due to competitive pressure and partly due to continuing good power situation in the Nordic market. In 2001 retailers started to increase their prices pressured by the worse than normal hydrological situation.

Dry years continued in the Nordic area and as a consequence prices increased each year reaching the peak in 2003. At this point, the list prices for residential customers had increased in average as much as 28 % since 1998.

In 2004 and 2005 the situation improved and the prices decreased, but again in the late 2005 the prices started to increase. This time several factors affected the increase. The water situation was again rather weak in the Nordic market. In addition, the European Emission Trading Scheme (EU ETS), which commenced in 2005, put pressure for retailers to raise prices. In 2006 electricity retail prices rose again sharply, about 14%, but calmed down in 2007 when the hydrological situation improved. However, the retail prices continued to increase and all in all the prices rose around 2,9 % in 2007 as retailers were waiting for the Kyoto period to start (EMV 2008a). In 2008 the prices have continued to increase and by September the overall increase has been around 12%.

As can be seen in the Figure 16, the end-user list prices in Finland follow the wholesale prices also to some extent, even though the correlation is much weaker

26 An interesting and much discussed aspect connected to the opening of the Finnish retail market, is the simultaneous increase in the network tariffs. During 1998 the network tariffs increased in average 6-8%. It has been speculated whether the energy companies compensated the decreases in the price of electric energy by increasing the network tariffs, whereas based on the principles of market opening, there should be no connection between the evolution of electric energy prices and network tariffs due to the unbundling requirements and the regulated characteristic of network operations. Partially the increase was affected by the change in taxing as taxes on network operations increased by 24% in September 1998, but still concerns have been raised of unfair behaviour from the electricity companies part. (KTM 2004a)

than in Sweden and Norway and the lag is large, according to some estimations as long as four months. The background for the development of this type of correlation is further discussed in section 5.6.3.

5.4.1 List price evolution compared to offer price evolution

There have been concerns that the offer prices increase faster and more than list prices. VaasaEMG has collected information about offer prices since January 2001. The average increase from this date to the end of 2007 has been 110%.[27] During the same period of time the increase of list prices has been in average 63% (VaasaEMG 2007). This situation, however, changes continuously as list prices and offer prices react to the wholesale market situation very differently and with different pace, and thus, judgements should not be done solely based on a snapshot of the situation. The development of list prices and offer prices for customers consuming 18 000 kWh per year is presented in Figure 17.

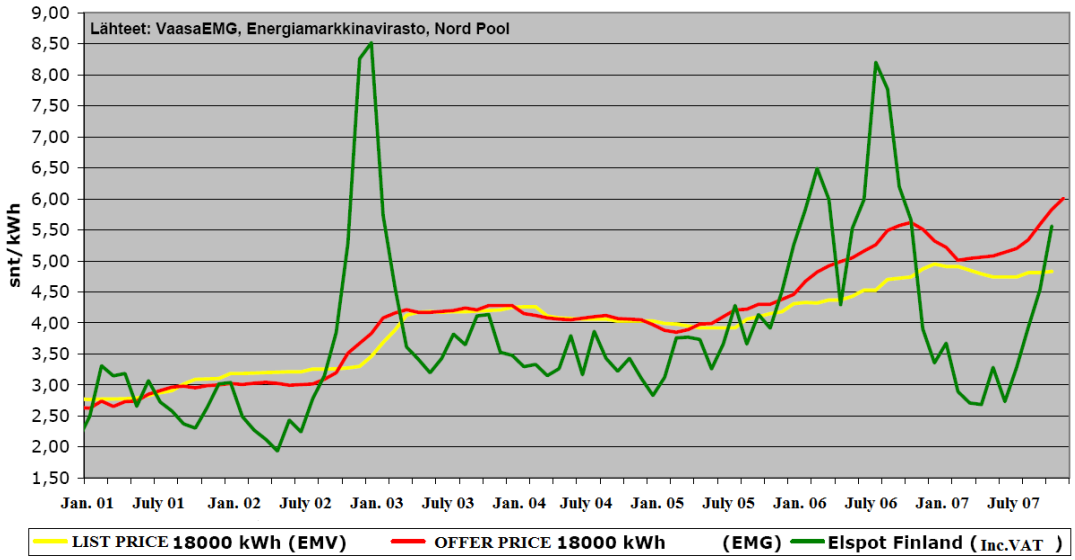

Figure 17: Development of list prices and offer prices between 2001 and 2007 for customers consuming 18 000 kWh. (VaasaEMG 2007)

27 It has to be noted that between 1998 and 2001 the retail prices had decreased somewhat and in 2001, the retail prices were at their lowest, which affects these results. More suitable comparison would be between the market opening in 1998 and the current date, but information on offer contracts have not been collected systematically before 2001.

In addition to the difference in the overall price increase, there are other interesting characteristics connected to the relationship between the list and offer prices. Unlike in Norway and Sweden, where the offer prices compete well with the list price and are generally more profitable, the list prices in Finland have been in fact rather competitive. A special characteristics of the Finnish prices have been the slow changes in the list prices but faster changes in the offer prices, which has resulted that often during the increasing spot prices, the offer prices are more expensive than the list prices.

From a customers' point of view, this is not especially worrying, as the slowly increasing list prices efficiently cut the price peaks and the customers profit from the lagging and stable prices. Worrying in this type of price development is that the customers' awareness usually increases during the increasing prices, but in the Finnish market it is very difficult to find good offers during these times. Many suppliers even announce straight that they do not give offers outside their distribution area and the offers of other suppliers are not generally very competitive, which might further lower the customers' interest in competition and switching. Customers in general do not have a good knowledge of the markets and this type of system is difficult to understand. Customers might get a bad image of competition and judge market inefficient based on negative experiences. For example, during the increasing prices, suppliers often do not even respond at all to customers' requests. The reasons for this type of price development will be further discussed in the section 5.6.3.

For example, according to a survey done in winter 2003 and repeated in summer 2004, about half of the suppliers did not give offers outside their area and only part of the offers given were competitive. Only one fourth of the offers were lower than list prices (Kinnunen 2004). This same survey also noted that in general the list prices were cheaper than the offer prices at this time, which naturally have a big effect on customer switching. The dominating strategy in this period, as usually during the high prices, was to hold on to existing customers as making profitable offers for new consumers is not possible.

5.5 Market structure

According to EMA, there are 75 retailers in the Finnish retail market. 69 of them have an obligation to supply at least in one distribution area and the remaining six are independent retailers. As in Sweden and Norway, the amount of retailers has decreased significantly during the past ten years. Before the market opening there were approximately 120 retailers. Furthermore, only around 40 suppliers are estimated to compete nationwide, although the number varies largely over time. During the increasing prices less companies make offers in the whole country, but during the decreasing prices the activity generally grows.[28] However, the number of retailers is generally considered to be sufficient for competition and concerns of exploiting market power have not been raised.

Most electricity suppliers are local companies with their own distribution areas and own production, and with fairly small customer base of about 12 000 to 160 000. The few larger companies have typically 300 000 to 400 000 customers (KTM 2004a). Four of the companies have market share of over 5% and the three major retailers together hold market share of approximately 35 to 40% (EMV 2008a). Bundling is very common among Finnish energy companies as most of them are integrated producers, distributors and suppliers, although the amount is decreasing. Having own production, or substantial investments in shared generation has been benefited by several companies. In addition, some municipalities have very efficient CHP systems. Co-operation is also very typical in the Finnish electricity industry, especially in the form of marketing companies and associations.

There are no formal barriers to enter the retail business. Anyone who is interested can act as a retailer. Some large foreign entrants (Swedish Vattenfall and German E.On[29]) have entered the Finnish retail supply market by acquiring local electricity companies, accounting now for about 20-25 % of market share altogether. These

28 Which is also largely due to the pricing method described more closely in section 5.6.3. Shortly, the pricing in the Finnish market has resulted in a situation, where list prices react slower to spot price changes than offer prices, making them rather profitable during the increasing prices. Due to this, the only possible time to make good offers is during the decreasing prices.

29 Later on E.On Finland was bought by Fortum, but after that E.On has returned to the Finnish market as an independent supplier (Annala 2008).

companies are foreign electricity incumbents and generally aim to act in the Finnish market as most of the Finnish companies; both in generation and supply. There have been very few companies entering only in the competitive retail supply market due to the difficult conditions for new entrants and their market shares have remained low. First independent retailer without own production or network business, Station 1, entered the market as late as 2005 and managed to gain about 10 000 – 20 000 customers during the first year (NordREG 2006b). After St1, few other independent retailers have entered the market, such as department store Halpa Halli, Ekosähkö Oy, a retailer selling only green energy, and most recently Suomen Energiayhtiö in 2005. Suomen Energiayhtiö (SEY) is a subsidiary of Swedish company Energibolaget i Sverige and operates with similar strategy, they target mainly consumers living in apartments through aggressive telemarketing. They have managed to get around 2 000 new customers per month, which is considerably less than their Swedish parent company. However, the share of SEY from all the switches done in the autumn of 2005 was around 70%-80%, and thus it can be considered as a rather significant player in the market (NordREG 2006b). During the writing of this thesis, also Swedish Kraft & Kultur was planning to enter the Finnish market, first to the industrial side and after also to the residential side.

5.6 Retailers' strategies and activities

Serious doubts have been raised about the companies' interest to compete in the Finnish market (KTM 2004b, EEE Ltd 2008). Hardly any companies seem to try to attract new customers and some of the retailers do not even make offers outside their own area, which leads to even greater passivity among customers. It has been suspected that retailers are aware that customers have not shown much interest in switching and the passive segment seems to stay high, which allows retailers to keep a comfortable price level and to benefit from the customers' passivity (EEE Ltd 2008). On the other hand, some suppliers also keep the obligation to supply tariffs low enough that there is insufficient motivation for consumers to switch. In addition, price matching has been reported to occur. Incumbent suppliers make sufficiently low offers that matches the competitors' offers to keep the customers who are planning to leave.

However, the biggest reason for retailers passivity stems from the dominating pricing system that has developed very differently from the Swedish and Norwegian systems. Due to the system, where retailers base their pricing heavily on the prices of derivative contracts instead of spot price, making good offers during the increasing prices is impossible without making loss as the new offers are based on the current price trend, whereas the existing contracts are hedged against the price increase. On the other hand, the only possible time to make good offers is during the decreasing prices, which is also the opportunity for new companies to attack. Thus, as a consequence of this pricing method, the Finnish retailers appear worryingly passive in terms of customer acquisition, especially during the increasing prices, which has been the dominating trend during past couple years.

However, even during the decreasing prices there has not been significant customer activity keeping the customer acquisition costs rather high, which might have partially decreased retailers interest even during these times and thus creating an overall passive image of the Finnish retailers.

In addition, most Finnish retailers are small municipalities, who do not have much interest in competing and maybe not even ability to compete. These small companies have particularly taken passive role. They have mainly followed the development of the market and have not done efforts to gain new customers. This passive strategy has turned out to be fairly successful due to the passivity of customers. Municipal suppliers might also have other objectives than making profit, such as guaranteeing cheap electricity prices for the town's inhabitants and industry and thereby supporting the economy of their town.

Some suppliers have however made bigger efforts and acted actively nationwide. Larger suppliers with own production have realised notable marketing campaigns, especially in the beginning of competition, but these campaigns have turned out to be not that successful, again due to the customers passivity. The cost of customer acquisition has thus been high, whereas the retail margins are very low, and this has hindered the interest of companies for marketing even more.

However, there have still been some signs of competition in few past years, as many suppliers have started to offer new contract types, for example more retailers have started to offer the spot price based contracts. The marketing strategies have also transformed the form, from visible media campaigns to more focused marketing. For example, suppliers are suspected to follow the competitors' prices through internet and act when some local supplier raises prices by approaching their customers with a lower offer.

Customers' passivity is especially difficult for new, independent retailers who assumably have the highest motivation to gain new customers. As it seems to be difficult and costly to gain a customer base, the entry has remained very low. In addition, new entrants are dependent on the wholesale market, which increases the risk level and complicates their situation in comparison to the companies with own generation. As most of the suppliers have own production in the Finnish market, there exists a threat that these vertically integrated companies might try to act in a way that makes it difficult for independent retailers to operate and survive in the market (KTM 2004b). Incumbents might use the profits from generation to sell with low or even negative retail margins, while pure retailers are forced to buy from volatile wholesale market, which might become costly and even unprofitable. Moreover, due to the pricing method, the only favourable timing for new companies to enter the market is during the decreasing wholesale prices. Further challenges are created because even if the retailer would manage to enter the market in an auspicious market situation, during the next cycle of decreasing prices, these companies are in the position of old companies who can be again challenged by other entrants or active retailers. As a consequence of these problems and the fact that the retailing in Finland has not been profitable, there have been only few new companies and the situation is not expected to change much. Old suppliers with other operations, distribution and generation, have better possibilities to tolerate the small or even negative incomes of sales operations as the main incomes are coming from these two other business areas. Thus, even if the current retailers would not be satisfied with the situation and find it challenging to operate in, they are not aiming to make changes very eagerly as the changes in the market have been noted to

happen very slowly and especially nowadays the atmosphere is rather anticipatory as the most probable changes are expected to stem from the metering renewal already in the next few years.[30]

As a result of passive strategy of smaller suppliers and the difficulties of new entrants, competition in the Finnish retail market happens mainly between the larger incumbent companies, although the few entrants that have entered the market have probably confused the situation into some extent during the decreasing prices.

This situation, hard pricing system and the following unprofitable sales operations, is difficult for retailers but in fact rather beneficial for consumers, at least for the time being, as the prices have not increased to very high levels.[31] Considering this situation and the level of suppliers' passivity in the Finnish market, it is interesting that according to a survey done by EMA in 2005, more than half of the suppliers considered themselves as active players in the market and 92 % of the suppliers considered that competition was working well, even though some shortcomings still exists (EMA 2005), whereas according to another survey from 2004, only 17% of the household customers found competition efficient (KTM 2004a). These results indicate well the contradictory views of different market participants and the overall controversial situation in the market.

5.6.1 Types of contracts and innovations

Most of the retailers have offer prices, even if they are in some cases offered only to their own customers. The typical offer contracts are same as in Norway and Sweden (see Chapter 2.); standard variable contracts, spot price based contracts, 1- and 2-

30 Although, as will be discussed in the section describing the price setting of retailers (5.6.3), the biggest Finnish retailer, Fortum, has just changed the pricing of their variable price contracts, which indicates that they are making efforts to change one of the most problematic features of the Finnish retail market.

31 Whether the situation can remain at its current form, keeping the prices rather competitive for consumers remains to be seen. In a situation like this, without strong pressure from competitors or customers, the threat of monopolistic or oligopolistic behaviour and increasing prices exists. However, there have been no signs of too worrying situation so far and no suspicions have been presented, unlike towards the wholesale market. In addition, the concentration has remained even lower than in Norway and Sweden and it is predicted that the future metering renewal will change the situation significantly before alarming situation could form in the market.

year fixed price contracts. 3-years contracts and longer are not allowed in Finland. However, in summer 2006 only 7 % of the retailers offered all of these contracts (TEM 2007). Especially the spot price contract has not been widely offered, although increasing recently, as retailers do not expect customers to be interested in such an unstable and risky product and because compared to the variable price contract the spot price might generally become more expensive. The first one to offer spot price contracts in 2004 was fairly active and innovative municipal retailer, Turku Energia, followed by the new entrant St1 next year.

Even though in principle these three contract types are similar as in Norway and Sweden, the variable price contract has developed rather differently and differs from the volatile Norwegian and Swedish variable price contracts. The Finnish variable price contract has turned out to be a rather stable contract as retailers have developed an operating way suitable for the strict price changing regulations and therefore it could be considered almost as a different product than the Swedish and Norwegian one.

Suppliers have not been especially innovative in the Finnish market. Most of the companies offer these basic types of contracts or part of them, but not many additional, value-adding services have occurred. Environmental aspect is relatively important, so to some extent there have been developments in this area, for instance one new entrant, Ekosähkö, offers only green electricity.

5.6.2 Marketing

Finnish retailers' marketing methods have been quite similar as in Norway and Sweden. There has appeared little bit every type of methods to acquire customers, such as TV advertisements, newspapers, leaflets and telemarketing. Most successful means of acquisition of new customers have been affinity selling and bonus point schemes (KTM 2004b), although lately telemarketing have become increasingly popular, assumably due to a fairly aggressive new entrant, Suomen Energiayhtiö, who sells only through telemarketing. As in other Nordic countries, door-to-door selling does not fit to the Finnish culture.

5.6.3 Price setting

There have been concerns that the pricing strategy of many suppliers is raising prices continuously. Retailers often justify the continuous increases with the situation in the wholesale market and recently with the emission trading scheme. In addition, as a majority of customers seem to remain passive, there have been claims that suppliers are quite free to follow any pricing strategies. (KTM2004a)

It has been feared on the one hand that when Finnish suppliers raise their prices, they raise it little more than needed, so that they do not need to change it again when small increase happens in wholesale market and on the other hand that the decreases are not fast enough as, again, retailers want to avoid frequent price changes. Frequent price changes can be costly for suppliers and cannot even be done more often than once a month due to the regulation. Loosening the regulation would make the market more flexible and enable the end-user price to follow the wholesale price more closely, which is more the situation in the Norwegian and Swedish markets.

However, the pricing of retailers has developed very differently from the Norwegian and Swedish methods due to the regulations set to create the framework and the situations should be compared with caution, as based on the regulations, it would appear that the objectives of competition might have been different. The pricing of Finnish retailers is not that simple and claims of continuous increases might be partly exaggerated. The Finnish regulations have resulted in a stable pricing system. The retailers have adapted a method suitable for the Finnish regulations, but in addition, the price changes have been even slower than the regulations would require. Retailers hedge their sales in a rather long run, and thus the pricing of variable price contract is more based on the prices of financial products than on the spot price, which explains the different and stable evolution of the retail prices. When spot price increases, the Finnish retail prices lag notably behind as they increase based on the changes in the prices of derivatives. During the decreasing prices there could be concerns that the prices do not decrease as fast as they rise, but so far it seems that

there are some factors that force the retailers to lower the prices also in reasonably fast pace, such as media attention and the new entrants.[32]

Whether the Finnish retail pricing system is better or worse than the Swedish and Norwegian systems depends on the point of view. From the customer point of view, the situation is in fact rather good as the prices are stable, have not increased significantly and are often even lower than the spot price. From the supplier point of view, the situation is more difficult as the raising of prices is very slow compared to the increase of spot prices, but during the decreasing prices they are forced to lower prices rather quickly due to the threat of possible attacks of new entrants and active companies and sometimes also due to the media attention. It could even be estimated that in this aspect competition is, in fact, even too fierce as the margins have remained very low, or even negative (even compared to the derivative prices) and the retailers are continuously making losses in the sales and thus, the previous judgements of the lack of competition seem too hard. In addition, hedging sales in rather long term requires resources and good knowledge of risk management, which might be difficult especially for the smaller suppliers and the new supplier without own production. Moreover, this pricing method is difficult for retailers also because at the moment they have to hedge the sales of variable price contracts rather far in the future, but the customers can switch away from variable price contracts any time they want with rather short notification, creating insecurity and risk for retailers.

The biggest Finnish retailer, Fortum, informed in the end of 2008 that from April 2009, they will update the prices of variable price contracts regularly four times a year. This partially demonstrates the difficulties that retailers face with the current pricing system and that they want to change it. If other retailers will follow Fortum's lead, the Finnish retail prices will most probably become more volatile. Whether this is good or bad for the overall competition and whether the prices will increase is somewhat a question and remains to be seen.

32 As discussed there have been rather few new entrants, but maybe these entrants have been enough to challenge the incumbents to some extent during the decreasing prices, which is the most important in the Finnish market situation.

Often it is considered that one of the objective of the market reform was that retail prices would signal the scarcity of electricity through the high prices all the way to customers, and thus to improve the security of supply. Whether this was the case in Finland appears to be somewhat questionable. Based on the regulations set, it could in fact appear that the intention was to prevent large price changes and to guarantee stable prices for consumers. In Finland the customer protection questions are often brought up in the discussions and might be one reason why the development has been so slow. As electricity is a necessity, the rules have remained strict despite the continuous discussion of renewing or loosening the rules, which supports the conscious goals of a stable system. If this was really the case, then the objective was fairly well achieved.

5.7 Consumers

Customers are an important part of the retail market. For a well-functioning competition, it is important that customers are aware of their possibilities to switch supplier, renegotiate their current contract and possibilities for better prices. Whereas Swedish and Norwegian customers have been reasonably active, Finnish customers' activity has remained rather low.

5.7.1 Switching

Customers have not switched supplier in Finland as much as in Norway and Sweden. Data on customer switching has not been collected in a systematic way, but according to information gathered for special reports and researches, the switching numbers have been low. By the year 2000 only 2% of electricity users had switched their supplier. In 2002 the figure had increased to about 5% and in 2004 to around 11% of household customers. In 2007 EMA started to collect supplier switching information[33] and according to their results, in 2006 approximately 3% of small and 8% of the large Finnish customers switched supplier and in 2007 the switching rate was 4% for small customers.

33 EMA collects the information from DSOs three times a year.

If customers who have renegotiated their contract with their incumbent supplier are counted in, the activity have been little bit higher, although, in 2007 according to estimations, still approximately 70% of the Finnish households buy electricity within obligation to supply. From the rest, about 15% have switched supplier and 15% have renegotiated their contract with their old supplier (TEM 2007).

Switching seems to follow the same annual cycle as in Norway and Sweden at least to some extent. Switching has been usually highest on the first and fourth quarter, although the differences are not very significant (VaasaETT 2007).

5.7.2 Factors affecting customer mobility

Like in other Nordic countries, consumers with higher consumption have been the most active also in the Finnish market, which is natural as the electricity bills are bigger for these customers and thus the saving potential is more significant. For consumers living in a flat, the possible savings are much smaller and thus the incentives to switch are smaller. As the share of electrically heated households is the lowest in Finland, this partly explains the lower switching rates.

Lack of marketing from suppliers side has an effect on customers' switching. In a customer survey conducted in 2007 for a hundred people, significant part of the customers, 69 %, who had switched supplier said that they took the initiative by themselves. In addition, many of the passive customers said that they would consider switching if supplier would approach them with an offer (Hernesniemi 2007).

Finnish customers do not seem to react to high prices in the amount that Norwegian or even the Swedish customers do. During the large increase of prices in 2003, most of the customers remained passive. This can be mainly explained by the fact that, as described, the pricing method differs significantly from the Norwegian and Swedish methods. The end-user prices are rather stable and do not correlate with the wholesale prices strongly, thus decreasing the customers' incentives to switch suppliers due to high prices. The biggest price peaks are rather efficiently cut by hedging sales in longer term. Thus the variable price contracts are in fact rather

profitable during the increasing prices, whereas offer prices react faster resulting in a situation where offer prices are higher than list prices. This system has resulted in a situation where it is almost impossible to find competitive offers during high prices, which explains the low switching activity. During the decreasing prices the customers have more possibilities to find a competitive offer and to make even rather significant savings, but generally customers' interest towards switching is lower as the prices are already decreasing and media is not as active either. In addition, this pricing method makes the possible savings often rather short-term, which can partially decrease the customers' interest in switching.

Publicity shocks and media attention seem to have some kind of impact in otherwise fairly passive Finnish customers. Fortum's announcement of price increase and large payouts to the company's directors in 2006 led to at least some kind of notable increase in the the switching activity. This pushed Fortum to cancel price rises and make efforts to improve their image.

Previously, there have been estimates that transparency of prices has been a significant barrier to competition. A big step for improving the awareness of Finnish customers was done in February 2006 when EMA launched an internet based price comparison tool. As one of the biggest reasons for not switching according to surveys had been the difficulty to compare the offers and to obtain information and according to estimates less than half of the customers have ever even compared prices, this service should have a positive effect on the customers' activity. Before there had been some commercial web pages providing price information to consumers, but these were not very comprehensive. The web page of EMA is clear and well functioning. This service enables customers to compare the offer prices and list prices and also to see price statistic. The service has been very popular, with more than 3 million visits, but it is hard to estimate the impacts on the customers' switching behaviour.

However, due to the previously described price setting of retailers, which is largely based on the prices of financial products, comparing prices is still very difficult for

consumers. As the timetables of price setting vary a lot between suppliers depending on their hedging, the comparison of prices might be very challenging. Consumers often have rather low knowledge of electricity markets and thus this type of price setting might be confusing. In addition, as there is not much competition during the increasing prices, which is the time when consumers are most aware due to media attention, the consumers often do not find competitive offers. Failing to find a good offer once might significantly decrease the interest to try again later.

5.7.3 Choice of contract

There is no information available on the shares of contract types among Finnish customers. However, as said, it has been estimated that in 2007, still around 70% of the customers bought electricity under obligation to supply and thus, only about 30% have some kind of offer contract (TEM 2007). More exact data on the shares of different types of contracts has not been collected, but apparently spot price contracts have not been very popular. A couple years ago it was estimated that about 20% of customers were on fixed price contracts and the spot price contract was nearly zero (Littlechild 2006). Only few retailers even offer spot price contracts (although the amount is slightly increasing) and during couple past years spot price has been often higher than the average retail price, which makes spot price contracts very unattractive. In addition, as described, the variable price contract is rather competitive, which partially explains the large share of customers on this type of contract.

5.8 Discussion and conclusions

This chapter presented the important points of the Finnish retail market. Finnish market has not been as dynamic as the Norwegian and Swedish markets. The switching rates have remained rather low and there have been concerns that retailers have lost their interest in competition. Measured with the common competition indicators, competition in the Finnish market appears to be rather moderate. Some regulations, such as price changing rules, obligation to supply and extra metering fee

have restricted the development of dynamic competition and created a rather different system than in the neighbour countries, which has its benefits and problems.

Retailers have learnt to operate with these rules and as a consequence, the pricing method differs significantly from the Swedish and Norwegian methods. This has resulted in a rather stable prices and especially variable price contract has remained more competitive than in Norway and Sweden, which on the one hand restricts customer mobility, but on the other hand might be rather beneficial for consumers. Some concerns have been raised due to the prices, which have increased notably since the market opening, but on the other hand, the prices have never increased in a very high level and are still competitive even in the Nordic scale indicating that retailers experience some kind of pressure to keep their prices in a reasonable level. Thus, there exists some competition even in the Finnish market despite the lack of dynamic competition in terms of new entrants, customer mobility etc.

Based on the price level, this type of competition appears to be sufficient to keep the prices low and competitive. Therefore, even if the consumers have not switched, the situation does not seem to be too worrying. In fact, as the consumers already benefit from competition through their existing contracts, high activity and switching could even create unnecessary transaction costs. On the other hand, this type of competitive situation could lead into oligopolistic or monopolistic behaviour, but so far there is no proves from this type of development. More problematic could be the lack of new entrants, which are supposed to be innovative and develop better and cheaper services, but at the moment the range of contracts available is rather similar as in Norway and Sweden indicating that there has been some development in this area also.

6 Future of the Nordic retail markets

The Nordic electricity markets have gone through big changes during the past ten years, but the development is still continuing as there are already several plans for further improvements of the markets. Biggest changes affecting the Nordic retail markets in the following years will be connected to the installation of automatic

meters and to the further integration of the retail markets as the goal is to achieve a common, integrated Nordic market and eventually a pan-European market. This chapter discusses the plans, possible benefits and challenges of automatic meters and common Nordic retail market.

6.1 Automatic metering

Initially, when the retail markets were opened up to competition, the requirements for costly hourly metering equipments hindered the real competition. One by one, Nordic countries adopted load profiling systems negating the need of expensive metering equipments and making retail competition feasible also for the residential consumers. Now, ten years after the full market opening, the Nordic markets are getting prepared for another big, challenging change connected to the meters as all the three countries are planning to install automatic meters.

In Sweden DSOs are obliged to install automatic meters by July 2009. However, only monthly metering is required, at least in the beginning. In Norway automatic meters are planned to be installed by 2010 (von der Fehr et Hansen 2008), and in Finland the branch organisation, Finnish Energy Industries recommends installing automatic meters from 2009, but official requirements have not been set, at least for the time being. Finnish Energy Industries' goal is that by 2014, 80% of the meters would be automatic meters. Several distribution companies, e.g. Vattenfall and Helsingin Energia have already installed or made decisions of installing new meters (Annala 2008).

Transition to automatic meters is definitely challenging for all the parties, but it has also lots of potential and opportunities. Automatic meters have several possible benefits. Consumers are billed based on their real consumption and they become more aware of their own consumption, which increases possibilities for better demand response. In addition consumers' electricity bills will become more simple and clear and consumer do not need to read their electricity meters by themselves (Annala 2008). Moreover, switching supplier will become easier and customer

service may improve. Nordic Competition Authorities even estimate that installing online meters would decrease the electricity prices in the long run (NCA 2007).

For retailers automatic meters create possibilities to improve their service and develop new products. Retailers risks will decrease and retailers will be in more equal position considering for example the balancing settlements.

DSOs will probably benefit the most from automatic meters. For example, better availability of customers' consumption will enable DSOs to forecast better the demand, to reduce administrative costs and to improve liquidity (NCA 2007). However, installing automatic meters is a big and expensive project for the DSOs, although the development of the technology has been quick and is still continuing and thus the meters have become much cheaper. Still, the installing costs are rather high and will be partially transferred to the customers.

In addition to the handling of metering values, automatic meters have potential for several other tasks, depending on the chosen technology, due to its two way communication characteristics, such as different control operations, automatic recognition of power breakage or broken electric device and other value added services.

In Finland automatic meters will solve some regulation problems that are suspected to hinder competition. They will, for example, remove the need for a metering fee if consumer switches more often than once a year, and remove problems connected to the balancing methods, which is currently estimated to set the retailers in an unequal position. In addition, the metering renewal might result in more volatile prices with stronger correlation with the spot price also in the Finnish market.

On the other hand, automatic meters could also decrease competition as they leave rather small possibilities to compete on prices. The actual pricing of electricity could become very straightforward and the major methods to compete appear only through the additional services or new product forms. It could even lead to a situation, where

the pricing could be transferred to the distribution companies. At least the role of distribution companies will increase along this renewal.

All in all, installation of automatic meters will change the retail markets significantly and most probably improve the overall functioning. How the change will affect retail competition is difficult to predict, but the development is expected to continue fast during the coming years, making the improving of current system partially useless.

6.2 Common, integrated Nordic retail market

European Union's goal is to achieve a pan European internal electricity market. This is aimed to be achieved in stages (see Figure 18). Currently all the European retail markets are still national. Even the Nordic countries that form a common, successful wholesale market have mainly national retail markets.[34] First step in achieving the European internal electricity market is to form regional markets, like the Nordic area, Western European area etc., and after to unify these areas into one European market. Larger market is expected to have several benefits. Further integration of the Nordic markets is for instance hoped to increase the choice for consumers, increase competition and product innovation, lower retail margins and thus lower prices, and also to improve the security of supply. Integration of the Nordic markets will change the current situation significantly and will affect several parties of the market. Customers, suppliers, grid companies, TSOs and regulators are all facing new challenges during this process (NordREG 2006a).

34 See Amundsen et Bergman (2006a) for an analysis of the degree of Nordic wholesale and retail market integration.

Figure 18: European Union's goal of internal electricity market is planned to be achieved in stages. (www.fortum.com)

Plans for integration of the Nordic retail markets have already commenced and several studies on the methods of implementation, possible costs and benefits have been done. Especially the Nordic Energy Regulators have been active in this field. In 2006 they decided a timetable for the project, presented in Figure 19, which indicates that a harmonised platform for the common end-user market is aimed to be achieved by 2010. However, lots of harmonisation still needs to be done, which is why the schedule might be little bit over-ambitious.

Figure 19: Projected timetable for integrated Nordic retail market. (NordREG 2006a)

In theory it is already possible for a Nordic retailer to enter other Nordic market, but in practise it has turned out to be difficult due to several technical, regulatory and commercial differences, which create barriers to entry. Operating in another country requires, for example, making separate balancing agreement and creating new data systems. Only very few companies operate in more than one market (exceptions being mainly Vattenfall in Finland and Fortum in Sweden) and several attempts to enter have failed (e.g. Vattenfall in Norway, Statoil and Fjordkraft in Sweden). The key areas that should be harmonised are for example:

- Supplier switching practices
- Metering
- Balancing
- Load profiling systems
- Data systems
- Regulations connected to unbundling of DSOs

It is also important that the ongoing development of metering renewal, discussed in the previous section, is developed in co-operation between the countries and sufficiently harmonised.

As discussed, the electricity prices of end consumers vary a lot between the Nordic countries, which indicates the inefficiency of competition. Further integration of the markets should lead to more harmonised prices and margins (NordREG 2007).

Cost-benefit analysis of the market integration made by VTT (2008) concluded that the retail margins are generally low, but there still exist differences in the theoretical retail margins between the Nordic countries, indicating that market integration and increased competition could indeed result in decreased retail prices. However, as the margins in the Finnish market were mainly negative, based on the VTT calculations, and the Swedish margins were clearly the highest, the integration could result in increasing prices in Finland and maybe in Norway and decreasing prices in Sweden. Thus, the integration might not be beneficial for all the consumers, even though

competition would increase in theory. In addition, as the VTT report mentions, it may be that the retail market integration affects the retail prices mainly indirectly by enabling the development of new retail market products.

Concentration is expected to reduce in the one integrated market compared to the national markets, which are currently dominated by few large companies (NCA 2007). Reduced concentration and increased number of retailers is expected to increase competition. Furthermore, increased number of players creates opportunities for individual companies to grow and benefit from economies of scale without a threat of jeopardising the objective of effective competition (NCA 2007).

However, whether there will be real benefits from the integration of retail markets have been also questioned. Elforsk (2007b) studied the effects of the market integration on the margins and concluded that the integration will not have a substantial effect on the retail margins as they are already so small and as they believe that the competitive pressure is not likely to increase significantly. Also, as will be discussed more closely in the next chapter, some of the electricity market professional doubt whether retailers would start operating in other countries in larger extent than currently. If not, the situation is not expected to change much. Moreover, customers might experience higher barriers to choose a foreign retailer (NordREG 2006a).

Elforsk (2007a) also questions the expected benefits from the decreased level of concentration as they think that the current concentration levels in the national markets are not particularly high. Also NordREG (2006a) points out that merges and acquisitions could in fact reduce the number of participants and reduce competition.

Thus, whether the integration will increase competition is somewhat disputed, but mostly the expectations are positive. In addition, the process is considered necessary in the process of achieving the European internal electricity market. Therefore, the integration process is continuing all the time and is going to affect all Nordic markets largely.

7 Interviews – the views of the professionals

Previous chapters were based on a wide literature survey. To deepen these views, to gain better understanding of the situation up close and to map the views of different participants of the markets, an interview survey was carried out. This chapter presents the main results.

7.1 Method

As a part of the research study, number of interviews were made among electricity market professionals in all the three countries. Interviewees represented a wide range of electricity market professionals; regulators, retailers (both incumbents and new entrants), researchers and experts. Due to lack of time, the interviews focused only on the persons working with the electricity markets. Consumer interviews, which would also give interesting views of the situation, but which would require much larger sample and lots of time, were not done.[35]

Altogether 15 interviews were carried out, most of them by visiting the interviewees in their offices. Interviews were conducted in the autumn of 2008. Interviews were done in an open way by discussing various subjects loosely following a topic list, which was given to the interviewees in advance, and mainly concentrating on the subjects that each respondent knew the best. The topics were quite similar to the structure of the country chapters. Regulation, suppliers' and customers' sides were all discussed as well as the current situation of the markets. The concentration was given to the drivers of competition on the one hand and to the problems of the markets on the other hand. The expectation was that interviewees mainly discuss the market of their own country as it is the most familiar. Some interviewees, however, had a good knowledge of the other Nordic markets as well and were happy to give views and opinions of those also, which gives an interesting aspect to the results. Full list of the respondents can be found in the Appendix I. This chapter discusses anonymously the main results and observations from the interviews, although the knowledge gained during the interviews is present in the whole thesis. As the interviews were not well

35 See for instance EMV (2008b), ET (2005), TEMO (2004 & 2005) for interesting surveys among electricity consumers.

structured questionnaires but more like discussions and lasted from one hour to four hours, not all of the points can be handled in this report, but concentration is given to the most important aspects concerning the research problem, even if the whole discussions were very interesting and scope of the subject could be easily broadened. The results are not to be taken as final truth or as facts as they only represent personal opinions of the interviewees and also, as the sample is rather small, the results cannot be generalised. In addition, some respondents highlighted that the results are only their personal views, not an official opinion of their company or organisation.

7.2 Results

The topic list given to the respondents followed the structure of the country chapters, but as the interviews were conducted as open discussions, the actual structure of the discussions varied widely. Based on the analysis of the results after all the interviews were conducted, the most important points are classified under the following eight subheadings.

Developments

An important aspect affecting the different results in the Nordic countries that was brought up by several interviewees, is the development of the markets and competition, which have been rather different between the countries. The stage of development affects several aspects, for instance retailers' strategies, customer behaviour and the overall functioning of the market.

In Finland retailers were excited and active in the beginning of the market opening. Retailers were advertising and marketing actively. Prices were lowered notably. However, customers remained surprisingly passive. Informing of customers was not taken care well. Retailers reduced their activity and even lost their interest towards competing. Some had in addition made losses especially due to long procurement contracts done before the market opening. Customers on the other hand learned slowly. Customer awareness increased notably during the price peak of 2002-2003

when the retailers were not that active anymore and it was difficult to find good offers. After bad experiences, many consumers probably lost their interest also. Thus, the problem appears to be that the activity of consumers and retailers have not met in the Finnish market and the competition between retailers have not been activated again.

In Sweden on the other hand, competition started quite actively after the market opening and calmed down couple years later but got again tougher, which did not happen in Finland. This increase of competition was mainly caused by the bad reputation of large companies and activity of smaller ones. Also in Norway competition has managed to be triggered again due to several pushing factors.

In addition, the pace of development has been different. Some respondents estimated that the Norwegian and Swedish markets have developed faster than the Finnish market, although it was also stated that the overall development is rather slow in all three markets.

Retailers and the dynamics of competition

Nordic markets are rather fragmented, although the concentration has increased. Respondents generally estimated that there are enough retailers, even nationwide retailers, for efficient competition, but it was not named as an important factor for success.

Marketing methods in all the three countries have been diverse. Lots of different ways have been tried, but none of them have turned out to be very successful. Telemarketing was mentioned as the most popular and probably most effective method to gain customers. In Finland telemarketing has become more popular only recently, whereas it has been used for longer time in Norway and Sweden. Telemarketing has aroused lots of interest but has also had negative impacts. Generally marketing is quite expensive, customer acquisition costly and the margins are small. Thus marketing should be cheap and effective to be worth it. In the

beginning marketing was more wide and active. Large campaigns were done on TV and newspapers etc. Nowadays marketing has become more focused. Campaigns are often aimed to specific areas through direct mails or telemarketing. Remaining marketing is mainly image marketing. It was also pointed out, that perhaps there were not enough marketing professionals in the beginning, but later the situation has improved.

Differentiation of electricity is known to be difficult. In the Nordic countries the environmental aspect is rather important. In Sweden this appeared to start earlier than in Finland. Most of the respondents in all three countries estimated that the importance of environmental questions are going to increase in the future.

Retailers procurement possibilities in these three countries are the same. Retailers can have own production, buy from wholesale market or with bilateral contracts. However, the retailers strategies appear to differ, or at least the amount of different types of retailers. In Finland some interviewees estimated that the amount of small municipalities selling their own production cheap to customers in their own area is rather high and has an effect on the whole competitive environment by distorting the price signal and making it difficult for new entrants to enter the market. In Sweden and Norway the amount of independent retailers is higher and the retailers with own production have realised the opportunity cost of their own production. That is, you can always sell to the wholesale market and thus the spot price represents the opportunity cost for the production. Retailers only make maximum profit if they sell with this price. These different pricing methods have affected largely the different development of the prices and competition and have resulted in a rather dynamic markets in Sweden and Norway, whereas the Finnish market is more stable and the competition appears rather moderate.

Some interviewees even estimated that one of the biggest problem in the Finnish market is the pricing methods. Prices are very stable due to the strict price changing rules and the list prices have often been lower than offer prices and even lower than spot price. This situation is strange for free market and clearly affects competition.

This was estimated to be possible due to integration between production and supply, which makes the situation for independent retailers very difficult, some estimated that even almost impossible. Retailing is not profitable at the moment, but it is tolerated as the profits come from distribution and generation. The pricing was criticised to be unhealthy in the Finnish market. As an example, a large retailer operating in Finland and Sweden is making profit in Sweden but not in Finland.

New entrants have played significant role in Sweden and Norway but not in Finland. There have been few entrants in the Finnish market also, but they have not managed to be as successful as in the other Nordic countries. For example, an independent retailer Energibolaget i Sverige have managed to gain notably more customers in the Swedish market than their Finnish daughter company Suomen Energiayhtiö in the Finnish market. Some respondents also highlighted that the new entrants in the Swedish and Norwegian market are important for competition, even if several of them have left the market after few years and their entry cannot be considered sustainable. Whether new entry will appear also in the future and continue to have an effect on competition is unpredictable. Some said that the markets start to be rather mature and for example, year 2008 was calm in the Norwegian market mostly as the margins have been so small making the entry not that tempting and profitable. On the other hand some new entrants can change the situation again radically and most probably new entrants would come if prices were increased a lot.

Some interviewees also pointed out that as most of the energy companies in each country are integrated companies, retailing is only one part of the operations and often not even the main one. Even if the margins would be low in retail, there is guaranteed profit in distribution and profits have been rather generous in the generation during the past years. However, retailing is seen as an important part of the operations as otherwise media and public would question company's motives.

Customers

Price was clearly named as the most important driver for consumers to switch retailer and on opposite, small savings as the biggest reason for consumers' passivity. Several other reasons to switch were mentioned, such as potential savings, reputation of retailers, awareness etc., but most respondents estimated these to have only minor impact. From these reasons, reputation of retailers was estimated to be quite important, especially in Sweden but also in Finland and Norway. Generally bigger companies seem to have rather bad reputation and often media attention is negative. Whereas price is the most important reason to switch, service is a method to keep the consumers.

Several interviewees found it actually little bit mysterious why consumers are rather lazy to switch, although it was also stated that it is understandable that electricity is quite boring subject and people in general are not very interested in it. Also, electricity markets are quite complicated and consumers' knowledge is generally quite low. Difficult comparison of prices and unclear electricity bills confuse people even more.

Large consumers were clearly stated to be the most active and also most interesting on the retailers' point of view, but some also considered small consumers important as the fixed price gained from small consumers is relatively bigger than from large consumers. Risk connected to big consumers is larger. Customer segmentation to passive and active consumers were recognised by many, but it was also mentioned that this segmentation is getting more difficult when more time has elapsed from the market opening.

In Norway it would seem that it is more important to choose a competitive retailer rather than the best type of contract as retailers can be divided quite clearly to competitive and passive ones. In Sweden on the other hand, it was stated that the most important is to switch away from default contract as they are systematically more expensive than other contracts. Interestingly, in Finland the offer prices have

lately been more expensive than default contracts and switching might not be profitable at all.

Regulations

The most obvious problems in the Finnish market were found in regulation. Especially the rules connected to the price changing and obligation to supply was considered as hindrances of competition, but both of them are difficult subjects to change due to customer protection principles. Price changing rule weakens the correlation between wholesale and retail prices and affects the pricing decisions of the retailers, which have led to suspicions of continuously increasing prices. Obligation to supply allows consumers to be passive but also puts the retailers in an unequal positions.

Swedish and Norwegian respondents appeared to be rather satisfied to the regulations and some even mentioned this as one of the reasons behind the success. The regulations are rather light but still effective. Entry to the market was considered to be easy as well as the switching process, which are both very important to the functioning of competition. Some problems were seen in the unbundling requirements, balancing systems and metering. Bundling raised worries both between retail and generation and between retail and production. Inefficient separation between retail and distribution often creates problems due to unfair communication and inefficient separation between generation and retail can hinder the competition due to procurement difficulties of new entrants or through anti-competitive pricing. Especially Swedish respondents were worried about the inefficient unbundling.

Most of the respondents thought that public offer prices and price comparison services have a positive effect on competition through increased consumer awareness. Even retailers said that the worries that this kind of services would increase or even prices[36] are not needed as retailers who were interested in other retailers' prices could find them out quite easily already before.

36 See TEM (2007)

Some difference were mentioned in the balancing systems. Especially Norwegian estimated that balancing system in Sweden is more complicated than in Norway and it was mentioned as a reason why several Norwegian companies trying to enter Swedish market have given up. Also some Swedish criticised their balancing system and named it as one reason for higher margins.

Prices

It has been suspected that opening up the retail market has actually increased the prices rather than decreased, which was one of the objectives of the market reform. However, most of the respondents were not especially worried about the price level and particularly in Norway prices were found competitive and in a suitable level.

Price trend in Finland was estimated to stay stable and Swedish and especially Norwegian to continue following the wholesale price changes. Current prices under competition have been often criticised, but some respondents noted that the prices did fall after the market was opened and the increase is not due to free market, but other factors affect it, like European emission trading scheme and increased fuel price.

Price level in Finland is interesting as it is sometimes lower than the spot price level, which is clearly strange for competitive market. Some respondents estimated that this is partly due to the pricing strategies of small municipalities, especially the ones with efficient CHP production, as they sell electricity notably under market price, which distorts the price signals. On the other hand it was estimated that that the low price level is a consequence of the pricing method that bases mostly on the prices of financial products and partly also on own production. This pricing method is difficult for retailers as they are often making losses, but on the other hand might become beneficial for consumers. Interesting point is will the situation remain same or will the prices increase to the spot price level and higher and whether competition would activate then.

Margins in Sweden have remained higher than in other Nordic countries. There were no specific reasons given for this, but instead it was stated that the margins are anyhow very small and the situation is not that worrying. For example, in the UK, where competition is considered also well functioning the margins are even larger. The larger margins also attract new retailers in the market and create thus movements in the market.

Benefits

Although the functioning of competition have been sometimes questioned, respondents found also some positive consequences. Obvious benefits is that consumers now have choice. They can switch supplier if they are not satisfied and can choose retailer and product according to their preferences. Other benefits mentioned were for example improved customer service, more customer oriented focus and wide availability of new contractual forms. In addition, some respondents mentioned that the over capacity in production has decreased, which was one of the objectives of the reform.

Drivers and barriers of competition

Respondents had several opinions which are in fact the most important factors behind the success of the Norwegian and Swedish markets and the problems of the Finnish market and none of them came up as one important factor, but instead all of the interviewees named several smaller possible reasons. As this was one of the most important points of the research, different answers are collected into Table 1. The answers are not in order of importance. The drivers have been indicated with plus sign and hindrances with minus sign. In addition, the extent of the drivers and barriers might be different. For example, respondents pointed out that media have had driving impact in each of the countries but less in Finland than in Norway and Sweden.

Table 1: Drivers and barriers of dynamic competition in the Nordic retail markets based on the opinions of the interviewees.

Country:		
Norway	Sweden	Finland
+ Media attention + Political pressure / support + Efficient authorities and regulation + New entrants (easy to enter, no significant entry barriers) + Active retailers + Reputation of the sector + Price peaks + Long traditions in electricity sector (both retailers and consumers) + Processes working well (especially easy to switch) + Mature and transparent market + Active customers mainly due to high consumption and good informing of consumers (price comparison service already in the early stage) - Most of the entrants have left the market (might be worrying) - Possible use of market power especially towards passive customers	+ Media + Political will / pressure + Reputation (bad reputation of the "giants" and good reputation of smaller ones) + Image and brand + Efficient authorities (especially informing of consumers) + New entrants + Improved processes + Rather high consumption + Mature market + Active municipal retailers + / - Higher margins signal inefficiency on the one hand, but motivates new companies to enter the market on the other hand - Integration between retailing and production (creates barriers to entry) - Entry has not been sustainable - Possible use of market power (towards passive customers through higher default prices or through anti-competitive price level)	+ Media does have some effect + Price increases + Well working processes + Reputation of retailers - Lowest consumption out of the Nordic countries - Mistakes made in the beginning (bad informing, bad marketing, publishing list prices etc.) - Restrictive regulations (price changing, obligation to supply, switching fee etc.) - Pricing strategy of municipalities (under the market price) and the pricing of variable price contract (stable and lagging) - Entry barriers (low price level and procurement difficulties, difficult to survive in the long run without own production, passive customers, high customer acquisition costs etc.) - Not a mature market

As can be seen, in the opinion of professionals there are several points that have driven the dynamic competition in Sweden and Norway and the success can be considered as a combination of different factors. There have not been one or two clear drivers of competition, but it could be generalised that effective regulation and suitable market structure combined with some more particular factors, such as media attention, reputation and price changes, have resulted in a rather dynamic competition. Points mentioned by Swedish and Norwegian respondents are partially similar, which was quite predictable. Interesting is that even if the situation in the Finnish market is not as dynamic at the moment and most of the respondents mainly discussed about the problems of the Finnish market, some drivers of competition in Finland were also brought up and these drivers mentioned are also in some points

similar as the Norwegian and Swedish ones, such as price increases and media attention. It would appear that these factors have not managed to create as much movements in the market as in other Nordic markets, even if they have pushed competition to some extent. Partially media attention, price peaks etc. have not been as strong as in Norway and Sweden, but partially problems mentioned previously, such as stiff regulation (obligation to supply, price changing method etc.) and retailers pricing strategies can be considered to hinder competition to that extent that even possible drivers of competition have not managed to trigger competition.

Current situation and the future of the retail markets

As was expected the Norwegian and Swedish markets were generally considered to function rather effectively at the moment. The views concerning the Finnish market were more varied. Some of the interviewees said that the current situation is concerning and big changes are needed to improve competition. However, some were not especially worried and highlighted that compared to other European countries the situation is not that bad and especially the prices are still competitive, even in the Nordic scale despite the lack of dynamic competition in terms of customer activity, success of new entrants etc. Interesting is also that some Swedish respondents thought that the Finnish market is just couple years behind the development of Sweden and Norway and will become more dynamic in the future, but Finnish respondents did not agree. More common view was that the Finnish market appears to be little bit stuck in its current situation and no improvements are to be expected without big changes, although it was also highlighted that the electricity markets are quite unpredictable and surprising. Maybe even one very successful entrant could totally mix the situation in the Finnish market.

Most of the respondents believed that both, automatic meters and common Nordic market will increase competition, at least to some extent, and change the situation significantly. Installing automatic meters is planned in each country although with little different timetables. Automatic meters are expected to bring new products and make switching easier. They are excepted to ease the retailers' operations and

especially lower retailers' risk. Common market divided little bit more the opinions. Some considered it as a good step and practice as the markets are planned to be integrated eventually in the European level. However, whether it will make retailers to compete in other countries more actively was questioned. Even now retailers have opportunity to operate nationwide, but many have, however, remained only in their own area, so why would they start expanding later. Maybe largest companies would be more active, but part of them, like Fortum and Vattenfall, are already operating in several countries. Consequences of common market could be different between countries. Finnish market could get some kind of boost to more dynamic competition, but maybe the effect would not be that big in Sweden and Norway. Some estimated that prices would become more even eventually, which would probably mean increased prices in Finland and Norway but possible lower prices in Sweden. However, prices would not become totally even as they are not always even in the fully integrated wholesale market due to limited transmission capacities. However, most interviewees highlighted that a truly common market is still far in the future and lots of harmonisation needs to be still done, which is not that easy as everybody already have their systems and generally are not that eager to change. This harmonisation might also become expensive. In addition, comparing prices might be difficult in the beginning, but the market is probably going to develop and common operating methods to be set and learned. Overall, the future changes are expected to be rather slow as the development has been so far.

7.3 Conclusions

As noted earlier, the electricity market is rather special and complex market and raises several different opinions and thoughts. This interview survey interestingly showed some differentiating opinions of different actors in the market and also helped in understanding the real problems and drivers of retail competition, especially on the Nordic aspect. Some points of the literature survey were confirmed, but also additional points of views were brought up. The sample was rather small and there were only few representatives of each side of the market. Thus it was expected that the points of views vary and the results cannot be generalised, but as the aim was to gain better understanding of each market close up and partially map the views of

market actors, the survey contributed an important aspect to the whole research. Especially it was interesting to see how the views of different actors varied, which signals the complexity and heterogeneity of the market. It could be said that the incumbent retailers appeared to be most satisfied with the situation. New retailers and regulators viewed the situation with little bit more caution and found more problems and researchers were perhaps the most critical. The interviews handled widely the retail sectors as the aim was to get a comprehensive overall picture of the markets, but as the most important research questions of this thesis were the drivers of the Swedish and Norwegian markets on the one hand and the restrictions of the Finnish market on the other hand, the emphasis was given to these points. The answers were varied. Several possible reasons behind the Swedish and Norwegian success were brought up as well as several problems, particularly in the Finnish market but also in the Swedish and Norwegian markets. This makes identifying the most important facts little bit challenging and difficult and there is reason to believe that success or moderate results are a combination of several small factors, which varies from market to market. However, Figure 20 aims to map the situation in the Swedish and Norwegian markets based on these interviews but also taking into account the literature findings. This figure aims to summarize the success of these two Nordic markets.

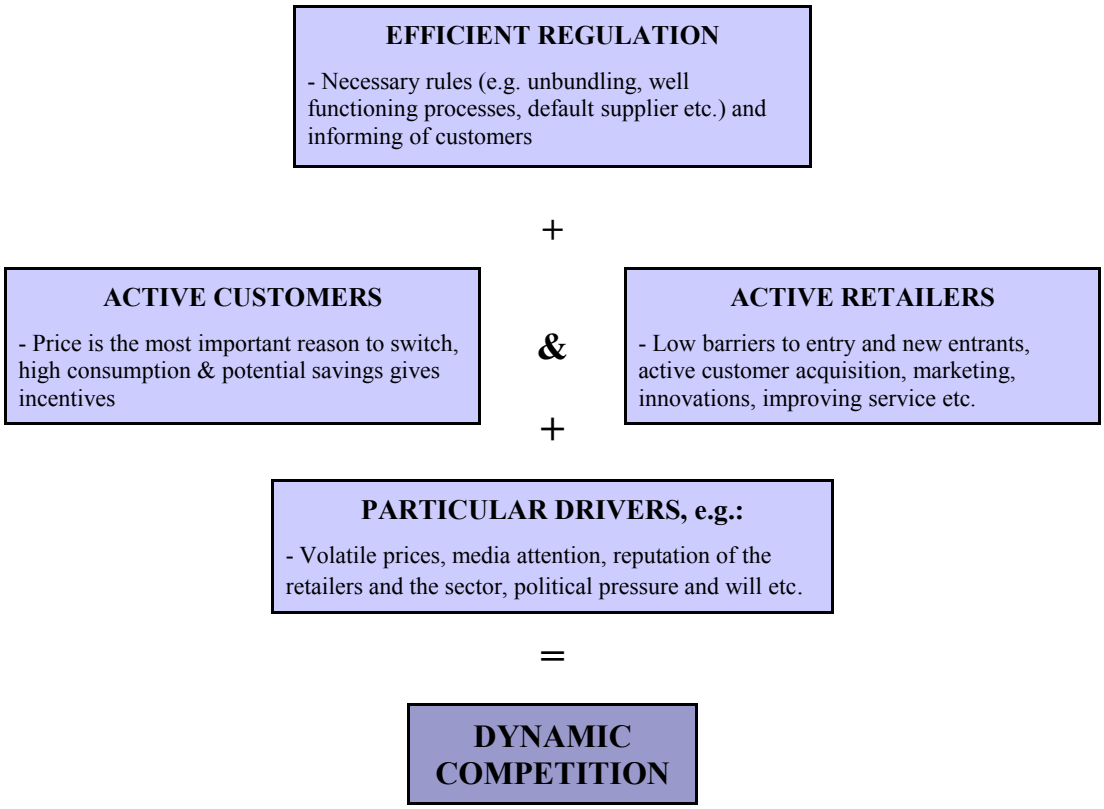

Figure 20: An outline of dynamic competition formed based on the opinions of interviewees

The results of the interviews are further discussed in the following chapter together with the results of the literature survey.

8 Discussion of the results

This chapter discusses shortly the important points of the three Nordic markets side by side, enabling better comparison of the markets and aiming to answer the research questions in detail. The reasons for different outcomes of retail competition are discussed, including differences in regulation, market structure and retailers' and customers' activity. Some more particular drivers of the Norwegian and Swedish markets presented in the country chapters are gathered together and discussed shortly in the closing section and viewed also in the light of the Finnish experience.[37] In addition, the results are considered in some parts in more general point of view as,

37 This section (8.5) is thus partially repetition from the country chapters and can be skipped if the chapters 2-5 have been read.

although the Nordic countries have their own characteristics, lessons learned from these pioneer markets might be useful when viewing other electricity retail markets. This chapter begins with a short overview of the markets viewed with the common competition indicators, confirming the different outcomes of retail competition in the three countries, but also partly challenging the claims of inefficiency in the Finnish market.

8.1 Level of competition viewed with the indicators

More dynamic markets in Sweden and Norway than in Finland based on the common competition indicators, but competition occurs also in Finland.

In the beginning of this research it was assumed, based on the previous literature, that the Norwegian and Swedish markets are more competitive than the Finnish market and this, in fact, was the base for the actual research question, which was to find out the drivers of the Swedish and Norwegian markets and to identify the problems of the Finnish market. However, as another aim was to give a comprehensive description of these three markets, it was natural to discuss the markets in the light of common competition indicators described in the Section 2.4. As discussed, it is not easy to evaluate the functioning of the markets based on these indicators, but as can be seen from the Table 2, which summarizes the indicators for all three Nordic countries[38], it would appear, based on couple of the indicators, that the Swedish and Norwegian markets are rather competitive, whereas competition in the Finnish market is more moderate.

38 The indicators are rough estimations mainly based on the previous studies. For example, analysis of the prices (correlation between wholesale and retail prices and price differences between suppliers) has not been done for this research, but the results are collected from several sources, with different accuracy and even little bit different times.

Table 2: Nordic markets viewed with the common competition indicators.[39]

Indicator:	Country:		
	Norway	Sweden	Finland
Cumulative net switching rate[40]	28%	32% (+ renegotiated 23%)	15% (+ renegotiated 15%)
Annual switching rate 2006	11.5%	7.7%	4.2%
Annual switching rate 2007	8.5%	9.5%	4%
Number of retailers (before / after reform)	224/158	220/115	120/75
Number of nation wide retailers	30	80	40
Number of independent retailers	5	20	5
Market share of three largest suppliers	50 – 60 %	70%	30 – 35 %
Correlation between wholesale and retail prices	Strong	Medium	Weak
Margins[41]	Low	Higher	Low

Based on the overall price level, all the markets appear rather competitive, at least in the European level, although the prices have increased in all three countries after the reform. Often market opening is criticised because of this price increase. However it should be remembered that, even if one of the objectives of market opening was indeed to guarantee secure supply to end consumers with reasonable prices, another objective was to reduce the overcapacity. This on the other hand means that, as the overcapacity is reduced, the prices might increase (Johnsen 2003). In addition, stricter environmental regulations, such as introduction of EU ETS, might increase the prices (Olsen et al. 2007).

39 Source: several reports referred in the country chapters.
40 Time of estimate vary somewhat, but these rates indicate the situation around 2006.
41 In VTT (2008) theoretical margins were calculated between 2003 and 2006. The average margins in Norway, Sweden and Finland for these years were 0.565 cent/kWh, 1.2925 cent/kWh, and -0.1575 cent/kWh respectively

Therefore, the overall price level is not the best indicator, but it is often considered that as a result of the market opening the retail prices should follow the wholesale prices more closely and the margins should be pushed down.[42] Based on the correlation between retail and wholesale prices, the Norwegian market is working the best. In Sweden the correlation is little bit weaker and in Finland it is very weak. Margins in each country are small but clearly the highest in Sweden, which casts some doubts on the efficiency of the Swedish market. The price developments in all three countries are presented in Figure 21, which clearly shows the different evolution of the prices.

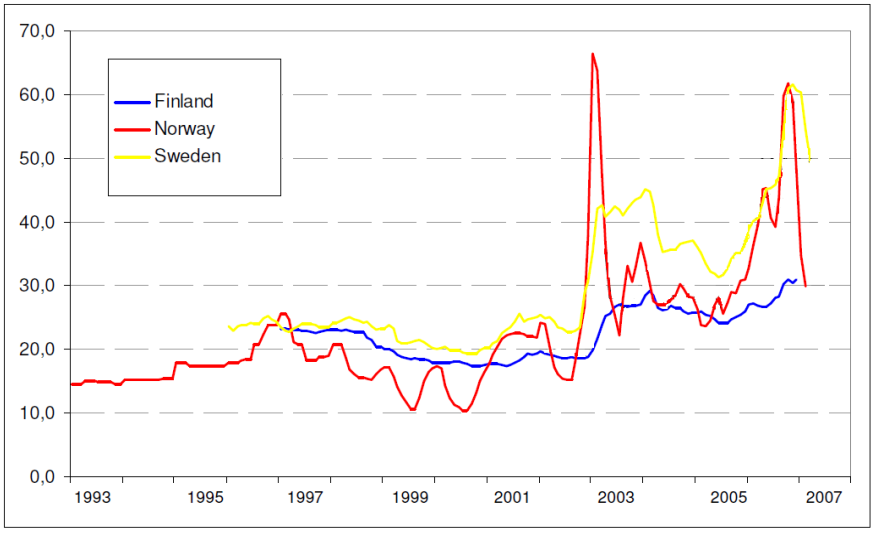

Figure 21: Nordic electricity retail prices for households, øre/kWh. (Olsen et Johnsen 2008)

Interestingly the Finnish prices have been often the lowest and based on the Figure 21, it appears that the Finnish prices have been most profitable for customers also in the long run with a rough ocular estimate. The pricing method of Finnish retailers, which is almost entirely based on the prices of derivative contracts, efficiently eliminates the price peaks. The margins in the Finnish market have been very low,

42 Although on the other hand, even if the margins are expected to be pushed down as a result of competition, their level is crucial for attracting new suppliers into the business (Glachant 2006). This is why the low or negative margins in Finland could be problematic as new companies do not enter the market and this could restrict for example product innovation. Whether this is a problem is a matter of opinion, but as long as the companies do not start exploiting their market power and prices do not increase too much, there is no reason for bigger concerns. If the prices started to increase and still no new companies entered the market the situation would be more worrying and competition could not be considered efficient.

often even negative. Thus, based on this point of view, the Finnish market performs rather well, even if the prices do not correlate with the wholesale price. Therefore, low consumer switching rates and weak wholesale and retail price correlation do not necessarily indicate high prices and high margins. Even on the contrary, if customer activity is high, it increases retailers risks and increases the transaction costs, which might partially explain the higher margins in the Swedish market. In the Finnish case, as most of the sales is hedged with financial contracts and not bought from the spot market, better indicator could be correlation between retail prices and future prices. This correlation has been noted to be stronger than the correlation between retail prices and spot price (Annala 2008), but still the margins are very small, or even negative, which indicates well the profitability of Finnish variable price contract.

Based on the market structure indicators, the markets appear rather similar. All of them have significant number of suppliers, although the markets are increasingly concentrated. However, the concentration is still in a reasonable level and the retail markets remain less concentrated than the wholesale markets and most importantly, customers are estimated to have enough retailers to choose from. Biggest differences can be seen in the number of independent retailers, which is clearly the highest in Sweden. Unfortunately data on number of new companies entering and exiting the markets could not be found, but based on the professional interviews, it can be assumed that there have been notably many entrants in the Swedish and Norwegian markets, but only very few in the Finnish market.

The most common indicator, switching rate, indicates the differences most clearly. The Swedish and Norwegian markets are notably more active than the Finnish market based on both cumulative and annual switching rates.

New innovations is difficult to measure also, but all three countries have new types of contracts after the market opening, which have become increasingly popular over time. Maybe the level of competition could be measured with the popularity of these new contracts. In Norway and Sweden the percentage of consumers on the new types

of contracts is high, around 50 % in both of the countries, but in Finland based on estimations, only around 30 % have offer contracts indicating again the lower level of competition. Although, as was seen, the nature of the default contract, variable price contract, differs a lot between countries. In Sweden and Norway the price of variable price contract changes often and is not generally very profitable for consumers, whereas the Finnish variable price contract have remained competitive compared to the offer contracts.

To summarise, based on these indicators it appears, as expected, that the Norwegian and Swedish markets are more dynamic than the Finnish market. However, in some aspects the Finnish market does not work especially bad either and during this research, it was noted that, in fact, there is rather fierce competition also in the Finnish market, which cannot be evaluated with these indicators.

In addition, the functioning of the markets depends on the point of view and on the desired objectives of introducing competition. Based on these commonly used competition indicators the Swedish and Norwegian markets appear more competitive than the Finnish market, but from the customer point of view the Finnish markets has worked reasonably well. On the one hand, if competition is hoped to create dynamic market with active customers, volatile prices and competition between retailers in terms of new entrants and notable retailer activity, the Norwegian and Swedish markets can be considered rather successful. On the other hand, if the objective would be stable and low prices the Finnish market has succeeded better.

Therefore, to avoid misinterpretation and judging of markets too quickly, the indicators for retail market competition should be further developed to be able to better evaluate the situations and to identify also different types of competition. Maybe in the future better methods to evaluate the markets will be available as for example Nordic energy regulators are developing a new set of statistical indicators (NordREG 2008b).

8.2 Regulations

Efficient regulation creates the framework for competition. Necessary regulations are needed to create common rules, but encouraging competition and informing of customers should not be forgotten.
Light but efficient regulatory framework in Norway and Sweden, restrictions and stiffer system in Finland.

Some basic regulations and some minimum public effort are necessary for a well functioning retail market. Regulations differ somewhat between the Nordic countries and have partially affected the different outcomes of introducing competition into the retail markets. Table 3 summarizes the main retail regulations in the Nordic countries presented in the country chapters.

Table 3: Main retail market regulations in the Nordic countries.

Regulation:	Country:		
	Norway	Sweden	Finland
Default supplier	Local DSO	Local DSO	Dominant retailer in the area (Obligation to supply)
License required	Yes	No	No
Separation between DSOs and supply	Legal (for companies with more than 100000 customers)	Legal	Legal (for DSOs with annual transmission >200GWh)
Price regulation	No	No	No, but the obligation to supply prices have to be reasonable
Price changing regulations	Notification 2 weeks in advance in a suitable manner (e.g. in a newspaper)	Notification 2 weeks in advance. Public notification sufficient.	Notification 4 weeks in advance personally to every customer.
Switching possible	Every Monday	First day of the month	Any day
Duration of switching process	Max. two weeks	~1 – 2 months	~1 – 2 months
Switching fees	None	None	Possible metering fee if last switch less than one year ago

As noted, regulation of the Nordic retail markets is rather light. There is no price regulation in order to create headroom for new entrants nor other special regulations to encourage competition, which appears to be a good decisions. Several studies have highlighted the negative impacts of the price regulation, which might for example have negative effect on new entry, on existing competition and on market integration (Eurelectic 2006 ; ERGEG 2007).

However, some differences were found in the legislations, which have affected the development of the markets. Considerable differences are connected to the unbundling requirements, price changing regulations and supplier switching rules, which all have an impact on the retailers' and customers' behaviour and hence on the overall functioning of the market and can at least partially explain the different outcomes of retail competition. Especially the regulations in the Finnish market have some restrictive rules, which have clearly hindered the development of dynamic competition, but also, as described, this was partially concious decision, which has created a stable and rather profitable system on the customer point of view. On the other hand, the Swedish and Norwegian regulations were noted to be effective and encouraging to dynamic competition with volatile prices and active retailers as well as customers.

8.3 Retailers

In a well-functioning retail market, suppliers play a central role. Exceptionally active retailers and new entrants in Norway and Sweden, Finnish retailers more passive and entering the Finnish market remains unattractive.

Active retailers is one of the most important prerequisites for retail competition. Retailers' strategies vary significantly based on different factors, such as size, ownership and power procurement, and also over time depending on the competitive pressure and market situation.[43] For instance, municipally owned companies might

43 Based on the Finnish experience, VaasaEMG has developed a model with different stages aiming to describe the general development of companies strategic thinking and behaviour over the time. These stages include non deregulation, pre-full deregulation, early-full deregulation, mid-full deregulation and mature-full deregulation. Each stage is characterised by different types of retailers' actions (KTM 2004b).

have different objectives than the private ones, new entrants have more incentives to be active than incumbents and larger companies might have better abilities or more interest to compete than small ones. In the Nordic market it appears that the Norwegian and Swedish retailers are rather active and have clearly driven competition, whereas Finnish retailers have become more passive, especially after the excitement in the early years.

Typical characteristic of the Nordic countries is the high number of small municipal retailers associated with network operations and often also with generation. Their strategies vary also, from very passive to rather aggressive. Most have adopted rather passive strategies, mainly concentrating to hold on to their existing customers. Some might have different objectives from the local municipal governments, for instance to sell their own production cheap to support the town's economy. Some concentrates on the monopoly operation, distribution, to guarantee stable income and some might not even have ability to compete due to small resources or are not interested to sell more than own production, which would require to start buying from the wholesale market, which in turn would mean more risk management etc. Some municipalities, however, accept new customers and have managed to grow their customer base more passively (without aggressive marketing) by offering cheap prices. In addition, at least some Swedish municipalities have shown greater interest in competing and have actively aimed to grow and have been, in fact, in an important role in driving competition by challenging the larger incumbent retailers. In Norway few municipalities sell cheap electricity to consumers in their own distribution areas, backed by water concession, but most of the municipalities charge around or even above the competitive level (von der Fehr and Hansen, 2008).

None of the Nordic markets have formal barriers to entry[44] and entry and exit to the market have been described rather easy and there has been some amount of entry in

44 Although a licence is needed in Norway, but as mentioned it is not especially difficult to get. In fact, the Nordic market offers rather good conditions for the development of competition. For example one of the most important prerequisite for a well functioning retail market and a common barrier for efficient competition, sufficiently liquid wholesale market (Eurelectic 2007), has been implemented and developed rather well in the Nordic countries, as the amount of electricity traded in Nord Pool has increased all the time and stands already for more than 70% of all the electricity consumed.

each country, which can be divided mainly into three types, foreign entry, entrants from other areas and totally independent entrants.

Foreign entrants have mostly been incumbent electricity retailers, who aim to grow by merges and acquisitions, but in addition have adopted rather aggressive strategies aiming to gain customers also from other distribution areas. These companies are typical in the early years of the market opening as the markets are still not mature and there is lots of space and opportunities. The entrants from other sectors, such as petroleum, generally aim to compete through their existing reputation and brand and often bundle electricity with their old products. Totally new entrants aiming to grow organically, in turn, have often aimed to compete with efficiency by small resources and also by outsourcing operations. Two typical approaches have occurred in the Nordic countries, either the ones that aim to play with simplicity and easiness (e.g. Yello in Sweden, Norges Energi in Norway) and others that could be considered more as niche players, aiming to target specific groups (e.g. Kraft & Kultur targets cultural customers, Swedish Energibolaget i Sverige and their subsidiary Suomen Energiayhtiö in Finland targets small consumers living in apartments).

In Finland, retailers' pricing method has developed very differently than in Norway and Sweden, and is based more on the prices of financial contracts than the spot price, which has resulted in a low price level. This in turn has prevented entry as independent retailers have very difficult to compete in this type of market, especially as price is the most important method to compete. Only possible time to make good offers for new customers is during the decreasing prices and some companies have managed to enter the market like this and managed to operate rather well for few years. However, during the next price decrease these companies are in the position of old companies and as they are still rather weak, they might face difficulties. In addition, it might be difficult to find efficient sources for procurement. Due to these reasons, and as the experiences have shown, in the long run it might be even impossible to survive or do well in the Finnish market. In addition, none of the few entrants have managed to create significant movements in the market, not even as

much as in the Swedish and Norwegian markets.[45] However, despite of the small amount of new entrants, the retailers in the Finnish market do experience some pressure to keep the prices low and thus there exits competition, even though different from the Norwegian and Swedish one.

In Norway and Sweden there have been more new entrants. On the one hand, the attempts of new entrants, especially the entries of petroleum companies, have often been described as failures as they have left the markets after few years or have been bought by an incumbent (Glachant 2006, EEE Ltd 2008), but on the other hand, they have reportedly managed to create some movements in the markets and push the incumbent companies to answer to competition, for instance to start campaigning, lower prices and improve services and image.[46] In addition, some of these entrants that have been later acquired by larger company still operate under separate brand and thereby still contribute to competition. For example, Norges Energi acquired by Hafslund, and which was later strengthened by acquisitions of Shell and Hydro Texaco, still continues to operate as nationwide "low cost" retailer. However, none individual new entrant has played as big role as British Gas Centrica in the UK market, but it appears that they partially can explain the activity in the markets, even though the entry has not been sustainable, which have been seen in the British market also. In addition to British Gas, there have been several smaller entrants in the British market that have been bought by bigger companies after a while, just like in the Nordic markets. Littlechild (2005) stresses the importance of these smaller new entrants as, despite their short period in the market, they are valuable for competition in terms of price, quality of service and innovation.

45 For instance, rather aggressive new entrant in the Swedish market, Energibolaget i Sverige, managed to gain around 5 000 – 6 000 new customers per month according to information in 2006, whereas a subsidiary of this Swedish company, Suomen Energiayhtiö, which has been one of the most aggressive new entrants in the Finnish market and operates in a similar strategy as the mother company, only managed to get around 2 000 customers per month in the Finnish market (NordREG, 2006b).

46 For example, a well known petroleum company, Statoil in Norway made very aggressive campaigns and managed to gain reasonable amount of customers. Switching rate during the Statoils' campaigns doubled from 3,5%to around 7% and more importantly, the incumbents appeared to answer the attacks with their own campaigns (Fosby Livgard, 2007)

Thus, these new entrants in the Swedish and Norwegian market have clearly driven competition to some extent. Whether it is a problem that the markets appear to be rather stable and mature (no new entrants in the Norwegian market in 2008) remains to be seen. At least some market professionals, interviewed for this research, strongly believed that if incumbents show uncompetitive actions and increase their margins, new entrants will again appear, which would be a sign of truly efficient competition. Also, whether the Finnish situation will remain in its current form with low and stable prices, with this low level of new entrants, is an interesting question. The current situation is rather difficult for retailers, and thus there are expectations that retailers try to change the pricing system, even if the regulations would not be changed.[47]

To conclude, in Finland competition happens mainly between incumbents, combined with only couple new entrants who have not succeed to create much movements in the market. In Norway and Sweden competition has been more driven by new entrants, whose actions have forced the incumbents to respond and become more competitive and in Sweden, in addition, by exceptionally active municipalities.

8.4 Consumers

Price sensitive Norwegian consumers, well-informed Swedish consumers and rather passive Finnish consumers.
Activity goes in line with the amount of consumption.

Consumers' awareness and activity are important for well functioning competition. Aware consumers create pressure for retailers to maintain prices low and also create incentives for companies to offer attractive terms of agreement and good service. The Norwegian and Swedish consumers have shown rather high activity with annual switching rates of 8,5% and 9,5% respectively in 2007, whereas Finnish customers have remained more passive with switching rate of only 4% in the same year.

47 For example, as mentioned, it appears that the large company, Fortum, is trying to transform their pricing towards more easy and profitable system for a retailer (price of variable price contract is adjusted every quarter), which could have an impact on other retailers' pricing also.

Segmentation between the passive and active electricity customers is recognised by some studies (Defeuilley 2008 ; von der Fehr et Hansen 2008), and indeed, it would appear that also the Nordic markets have been characterised by this segmentation. In each country there still appears to be rather large passive segment, who are still supplied by their incumbents. Smaller amount of customers appear to be active and more price reactive.

However, as time has already passed since the market opening, maybe more specific segmentation could be used. Active segment could be divided into two separate segments, proactive and reactive customers (see also Ofgem 2008). Proactive customers are the most price sensitive, seek for offers actively and follow prices, whereas reactive customers only react when retailer approaches them. In the early years the customers who switched were mainly the ones that were interested, thus proactive. Later on, as the marketing has become more efficient and focused, the reactive segment can be presumed to have grown. From the previously described marketing methods, direct methods, such as telemarketing and direct mails, are effective in reaching the reactive customers, whereas web pages and price comparison services reach the proactive customers. Segmenting customers into passive and active enables the retailers to price discriminate the passive customers and furthermore, dividing active customers into proactive and reactive allows retailers to make very attractive offers for proactive customers, but still gain customers with reasonable margins from the reactive segment.

Several studies have aimed to investigate the **reasons to switch and not to switch** electricity supplier. Reasons to switch seem to be rather few, whereas reasons not to switch appear to be much more diverse (Pakkanen et al. 2008). Clearly the most important reasons to switch are the price and potential savings. Therefore, Nordic consumers naturally have large incentives to switch, compared to many European countries, due to the high consumption of electricity stemming from high share of electricity heating (which accounts for around 98 % in Norway, 33% in Sweden and 22% in Finland of all the household heatings) and the following high expenditure spent on electricity. Moreover, the Norwegian households consume the most

(average of 19 000kWh per year), then Swedish (10 000kWh per year) and Finnish the least (5 000kWh per year), which goes in line with the customer mobility. However, as the part under competition, i.e. the price of electric energy presents only a part of the electricity bill (about one third, varying somewhat from country to country and between customer groups), the possible savings might appear small for customers. Reasons not to switch and other reasons to switch are rather similar in the three countries, generally connected to the decision making in the electricity markets, not depending largely on the specific market. Reasons to switch in addition to price savings are for instance desire for experiment, dissatisfaction, value adding services and offers (such as environmental friendliness), but they only work as minor motivators to switch. Reasons not to switch are several, varying from small possible savings and loyalty to consumers inertia. (Pakkanen et al. 2008) Whereas customer inertia is a global problem in the electricity markets, loyalty might have particularly strong impact in the Nordic countries, where many retailers are small and the local utilities often have an important role in the society. For instance, in Norway, according to a survey, over 40% of customers feel strong loyalty towards their local retailer (Fosby Livgard, 2007).

Information and difficulty of comparing prices has been long standing problem in the retail markets. All three countries have nowadays well functioning price comparing services, which are estimated to improve the customer awareness significantly and to facilitate price comparing. These services have in part surely improved the situation, but still the comparing might be challenging, especially in the Finnish market due to the slow changes in prices and different timetable of retailers' pricing strategies, which make it very difficult for consumer to recognise the best products as customers typically compare the prices only at a one specific time.

Choice of contract gives an interesting aspect on customers' behaviour in addition to the supplier switching. As discussed, Nordic consumers have rather wide range of different types of contracts to choose from. Even though the most typical contract forms offered are similar in all the three countries, the popularity of contracts differ significantly.

In all the three countries the standard variable contract still remains the most popular contract, although the shares have been steadily declining, accounting nowadays for about 46% in Norway, 36% in Sweden and 70% in Finland. The popularity of offer contracts cast some interesting light on the situation. In Norway fixed price contracts were slightly more popular in the early years and especially increased their share during the price pike of 2002-2003. Still in 2004 it was noted that there was no interest towards spot price contracts among household customers (von der Fehr et al. 2005). Later, the popularity of spot price based contracts have increased rapidly, whereas the share of fixed price contracts have varied without clear trend. In the third quarter of 2008 already around 46% of consumers had spot price contract. In Sweden in turn, the fixed price contracts have been the most popular since long time. Some studies have aimed to explain this difference. For instance it has been estimated that Swedes are more risk averse than Norwegians (Littlechild 2006). However, as was noted, the spot price contracts have become rapidly more popular also in Sweden during the past couple years and accounts at the moment for more than 20%, partly cancelling the previous hypotheses, especially if the trend is to be continuing in the same direction. Instead, the choice of contract could be due to other factors, such as market situation and the availability of contracts.[48] Collection of the shares of contracts in Finland is not as extensive making the comparison difficult. However, according to estimations around 30% have an offer contract and the amount of spot price based contracts is very low, hence most of the offer contracts are presumably fixed price contracts. Due to the market situation, list prices being cheaper than spot prices, it is natural that spot price contracts are not very popular.[49] In addition, as described the Finnish variable price contract has turned out to be very different than the Norwegian and Swedish contracts. Finnish contract is very stable and cheap and

48 Indeed, based on a partial overview of the nationwide retailers' web pages, which are important information sources and advertising channels, the retailers offer different types of contracts, or at least recommend or focus their strategy on some contracts, making them more competitive and attractive for customers. For instance, in 2006 only 9% of the Finnish retailers offered spot price based contracts and 7% all the common contracts (TEM 2007). In addition, campaigns often focus on some specific type of contract and as customer surveys have indicated, large part of the customers switch supplier as a result of retailer's contact. Thus, customers preference might have been overestimated in this sense.

49 Again, the small amount of spot price contracts seems to be explained partly due to lack of availability. First retailers in Finland started to offer spot price contracts only in 2004-05 and still nowadays only around 9% of retailers offer these contracts. In addition, the spot price based contracts have been less profitable than other contracts types and thus it is natural that customers do not choose it and retailers do not offer it.

the retailers hedge efficiently the price peaks in the part of consumers. In Sweden and Norway the pricing of variable price contract has become very close to the spot based contracts but often more expensive than the spot price contracts. This type of very volatile variable price contact has not been very profitable for customers, whereas the Finnish product is, in fact, very good for customers, both stable and cheap, which explains the large differences between the popularity of contracts. Which type of distribution of contracts signal more efficient competition is again matter of opinion and matter of point of view. From customers' point of view, Finnish type of variable price contract is rather efficient but on the other hand difficult for retailers. The Swedish and Norwegian type of contract fulfils the criteria of efficient competition if viewed with the correlation between retail and wholesale prices, but might not be the best for the customers. Although have to note, that even the Norwegian and Swedish customers do have an opportunity to protect themselves from the volatile prices rather efficiently by choosing a fixed price contract, which have been often more competitive.

Based on the Swedish and Norwegian experience, the trends among customer behaviour during time appear to be i.) rather slow but steady move from incumbent retailer to another retailer and ii.) also slow but steady move away from default contract to offer contracts. In addition, the spot price contracts appear to become more and more popular over time. These developments are largely due to the unprofitable characteristic of default contract. Finnish market has shown different development due to the different characteristic of the default contract, although there are estimations that the spot price contracts would increase popularity also in Finland. However, before significant changes happen with the current system, it is more probable that the metering renewal will change the situation significantly and also affect the popularity of contact types.

8.5 More particular drivers of the Swedish and Norwegian markets

Efficient regulatory framework and suitable market structure create good basis for dynamic competition, but in addition some more particular drivers are needed.

Previous sections viewed the three Nordic retail markets and discussed the main differences between the markets in terms of regulation and retailers' and customers' activity, which can all partially explain the differences between the countries. These factors explain largely the low level of customer activity in the Finnish market and indicate the importance of the basic features, such as effective regulations and customer awareness. In Norway and Sweden, the basic structure creates rather good basis for the development of dynamic competition without more significant restrictions. However, none of these factors cannot totally explain the exceptionally high levels of customer mobility. The market structure, regulations, exceptionally active retailers and the basic characteristics of the Norwegian and Swedish markets do create good framework for the development of active competition, but in addition there have been some other, more particular factors that have furthermore triggered competition and has strong impact on the customers' activity and the dynamism of the market.

In Norway, where the retail prices follow most closely the wholesale price as described, the price seems to have very large impact on the customer switching (especially in the active customer segment), both increasing prices and large price differences between the suppliers, which was clearly seen during the price peak of 2002-2003 and in some extent also in 2006. Also, according to a survey, the switching behaviour correlates to a large extent with the reputation of the power sector (Fosby Livgard, 2007).

In addition, as discussed, there are some small municipal retailers who offer cheap prices to their own customers, based on cheap hydro power concessions and are uninterested in maximizing their profits, although the amount is estimated to be decreasing. On the one hand this phenomenon is stated to be relatively rare, and of

limited importance for the overall market (von der Fehr et Hansen 2008), but on the other hand this has been estimated to cause downward pressure to the prices and even to be one of the drivers of competition (EEE Ltd 2008). EEE report even names these small companies as one of the most significant factor increasing the price competitiveness in the market. Furthermore the report states that although the market share of these companies is not significant, the media uses them as a shaming mechanisms against the more expensive companies.

Moreover, Norwegian have been estimated to have more interest and experience of electricity markets, both retailers and consumers, due to Norway's long traditions in the electricity sector. For instance, Norway had own wholesale market already before Nord Pool and the volatile hydro-based electricity market has been a common topic of discussion already before the market reform and thus Norwegian are often considered to be more aware of these issues. In addition, media regularly talk about electricity markets, especially during the high prices and has an important role in consumers' awareness.

In Sweden the unpopularity have had even larger impact than in Norway, especially the bad reputation of the large companies. Unlike in Finland, the large companies were rather passive in the early years and in general were the most expensive ones. Large companies suffered from the lack of confidence due to high prices, poor service and several power outages. Only media criticism combined with activity of smaller retailers, who even used the bad reputation of the three “giants” in their marketing campaigns, forced the large companies to become more competitive. These problems also partly woke up the regulators, who have paid more attention to retail issues since.

In addition, both in Norway and Sweden, electricity is considered very political issue, which in part may have affected the development. For instance, one of the main reasons for passing the supply shock of 2002-2003 successfully, is estimated to be the strong political support (Amundsen et Bergman 2006b). The political pressure

and will have kept the development going and resulted in rather mature and transparent markets.

To highlight the role of these triggers as well as the importance of basic conditions for dynamic competition, comparison with the Finnish market gives an interesting view. Finnish electricity sector and especially the large companies haven't had particularly good reputation, notable price increases[50] have been done and media talk regularly about the electricity market, especially during the high prices. However, it appears that these factors, which in part are similar to previously discussed developments in the Swedish and Norwegian markets have not triggered notably customer activity. Several events and facts in the Finnish market clearly demonstrate this.

In 2006 the biggest Finnish supplier, Fortum, announced large price increase in their electricity prices (HS 2007b), which created lots of negative media coverage. This was expected to lead to a large escape of Fortum's customers and media even reported this, but it appears, based on the interview survey, that even though Fortum lost some customers and lots of consumers compared actively the electricity prices (HS 2007a), they avoided notable customers losses. This most probably was due to the lack of competitive offers, i.e. even if the customers wanted to switch, they could not find competitive offers, which has been a typical feature of the Finnish market during the increasing prices due to the retailers' pricing method, which is mainly based on the prices of derivative contracts. However, Fortum cancelled the price increase in the following week indicating that the media have some effect on the markets (HS 2007b).

Furthermore, due to continuous price increases combined with other negative factors, such as large option pay outs, some companies, generally large ones, have suffered from bad reputation, but even this has not created movements in the market, again mainly due lack of competitive offers.

50 Even though the prices are not as volatile as in Norway and Sweden, the price increases have sometimes been rather high, even 10% - 15%. This is suspected to be a consequence of the strict price changing rules, i.e. the retailers do not want to rise prices often as is rather expensive. Hence, the price changes are done more rarely, but when done, they are often significant.

Moreover, as noted there are several municipal companies selling electricity with very low price (mainly locally), which reminds the situation in the Norwegian market. However, these companies have not been reported to have put competitive pressure on the prices and the role of these companies is somewhat disputed. On the one hand, instead of price pressure, they seem to create some distortion in the market price and even to some extent to create barriers to entry, but on the other hand the market share of these companies is very small and thus they cannot be considered significant for the overall situation and their role is very minimal.

These factors clearly demonstrate the impact of the basic market design and regulations. On the one hand, the Finnish market design has resulted in a rather stable market, with low and stable prices and therefore, the factors that generally have potential to trigger dynamic competition do not manage to create enough momentum and trigger the customer activity. On the other hand, demonstrated with the case of Norway and Sweden, even if the basic market design is suitable and creates good conditions for the development of dynamic competition, some special triggers are needed to truly activate competition.

9 Conclusions

The three Nordic countries, Norway, Sweden and Finland were among the first countries in the world to introduce competition into their residential electricity retail markets. The Norwegian and Swedish markets have proved to be rather active in several studies, whereas Finnish market has shown more moderate results, at least measured with the common competition indicators. This thesis aimed to give a comprehensive image of these three markets and especially to define the factors that have resulted in the different outcomes of retail competition.

Quickly glanced the situation in the retail electricity market does not seem particularly worrying in any of the three Nordic countries. The price level is fairly competitive in each country, especially in the European scale, the retail prices correlate with the wholesale prices to some extent, the margins are small and the market structures are very fragmented creating good prerequisites for efficient

competition. This deeper review of each market have however shown that the situation is not that simple and there still exists space for further improvements in all the three markets.

Several improvements have been already done and in more than ten years of full market opening some promising developments have been seen. All three countries have nowadays comprehensive price comparing services and effective independent market regulators. Customers have usually reasonable availability of choice, and especially the amount of different types of contracts is wide compared to many other markets. Separation between DSOs and supply is fairly efficient and the processes have improved notably. Retailers have become more customer oriented and services have generally improved.

The restrictions of the Finnish market were identified and a variety of reasons were found, mainly stemming from regulations (restrictive rules and lack of encouraging and stimulating competition) and immaturity stemming from the lack of activity both from retailers' and customers' side, altogether creating a somewhat stiff system. In addition, the prices are in average low, sometimes even lower than the spot price, mainly due to the current pricing system, which differs notably from the Swedish and Norwegian methods. Retailing has been unprofitable business during long periods of time. This has prevented new companies to enter the market or at least to survive in longer run. Moreover, Finnish market suffered from several mistakes made in the beginning, for instance lack of professional knowledge among the retailers and bad informing of the consumers, and the overall development towards dynamic market has not been as fast as in the neighbour countries.

However, it was also noticed that even though the Finnish market does not fulfil the criteria of dynamic competition in the sense of several indicators commonly used to measure the level of competition, there anyway exists competition and especially from the customers' point of view the situation is not that worrying as the prices have remained low, usually the lowest out of the Nordic countries. Competition is, in fact, rather fierce and the pricing of retailers has stemmed a product that is rather good for

customers. Variable price contract, which in Sweden and Norway has become very volatile and even very close to the spot price based pricing, has remained stable and in a low level as it is priced mainly based on the financial contract prices. The situation is more difficult for retailers as they need to hedge their sales in a rather long term and in addition, the sales have been often loss making. Thus, competition occurring in Finland is not as dynamic as in Norway and Sweden but cannot be judged as totally inefficient, which is often the case in the previous studies. This also raises question whether the previously mentioned restrictions in the regulations (obligation to supply, price changing methods) can really be considered as restrictions as they were intentionally chosen in terms of customer protection and in the light of these rules the market works rather well. Therefore it appears that the objective of the Finnish market was different from the Swedish and Norwegian ones and this has resulted in a stable system that appears less competitive in terms of competition indicators.

Which form of competition is better or more desirable, is a matter of opinion and depends on the point of view and desired outcome. The common version in the literature often highlights the dynamic model, but in the Finnish case, the current model might even be more efficient. At least the prices still compare well with the other Nordic markets and the margins have remained lowest. The Finnish retail market has suffered from bad reputation and has been judged as a failure also due to the media attention, which gives a rather negative image. However, this image is largely based on the overall functioning of the market, and especially the problems in the wholesale market, such as large profits from generation, have been incorrectly interpreted as problems in the retail market. If markets were viewed based on the prices, Finnish market could be even considered as the most efficient one at the moment, as the system efficiently restricts the over pricing, but it has to be remembered that this system also contains several problematic points and whether the overall situation is negative or positive is somewhat questionable.

Notable changes would be required to change the situation in the Finnish market towards the dynamic model, but as the prices are rather low and often even lower

than spot price protecting the customers from the price peaks, it could be questioned are changes even needed. Stricter unbundling requirements or looser price changing regulations would probably increase competition in the sense of customer activity, new entrants etc., but at the same time prices would most probably increase and the variable price contracts would become more volatile and less profitable for customers as has happened in Norway and Sweden. Therefore, as long as there are no signs of monopolistic or oligopolistic behaviour and the use of market power, the current situation is not especially worrying and the future changes, especially metering renewal, are expected to change the situation before alarming situation has time to develop.

However, the Finnish case is not particularly special in the sense of customer activity and other competition indicators, as the neutral or modest results of retail competition so far seem to be more the rule than the exception, based on the rather modest results around the world. Therefore, the exceptionally dynamic markets of Norway and Sweden are more of an interest considering the research question chosen for this thesis.

Norwegian appear to be the forerunner in the development towards dynamic competition in most of the aspects, not just in the European scale but also compared to the other Nordic countries. Regulation in Norway has been most effective, Norwegian were the first ones to establish a comprehensive price comparing service and the procedures are working well and effectively, for instance the switching process takes the least time in Norway. Retailers seem to have adopted competition rather quickly and have done efforts in their part to improve competition. In addition, the correlation between the retail and wholesale prices is the strongest in Norway, which is often considered to be a sign of a well functioning market and also to reflect price signals all the way to customers efficiently. Moreover, long traditions, the political characteristic of electricity, volatile prices and the reputation of the power sector have altogether formed a dynamic system together with the efficient regulatory framework.

Sweden seems to follow the Norwegian example closely. Regulators learned from their mistakes, for instance for not taking care of customers informing in the beginning, and have aimed to improve the situation since. The correlation between the retail price and wholesale price is weaker than in Norway but has become closer over time and nowadays the changes in the wholesale market are quite well reflected on the retail side. Margins have remained higher than in neighbour countries due to several reasons, which casts some doubts on the efficiency of competition, but as they are still fairly small and competitive, the situation does not seem very worrying. Bad reputation of large retailers, activity of smaller companies, new entrants, volatile prices, media attention and political will and pressure have altogether created rather dynamic, mature and transparent market.

As was noticed, the drivers of the Swedish and Norwegian markets are diverse, especially compared to the British case, which was discussed shortly in this thesis as well. This shows that probably one retail model does not work everywhere, but the design should be market specific. Some fundamental characteristics should be working, especially regulations, such as efficient separation, smooth switching process etc., but the actual drivers can be various. Finnish case gave an interesting point in this aspect too. The chosen model differs from the Norwegian and Swedish models but appears to fit the Finnish goals nevertheless. Therefore, the model should fit the desired objectives, which might differ from market to market. Considering the long term goal of the European Union to achieve one internal electricity market, different models will create challenges and it would be more desirable to harmonise the systems already in an early stage. However, the development has been more short-sighted and the national or areal objectives have perhaps been stronger motivators for the chosen models.

One point that is often discussed in the context of retail markets, is whether the competition has been beneficial to consumers or not. This was mainly out of the scope of this study, as it would require very detailed analysis and forming a scenario of the situation if the markets were still regulated, and thus the concentration was given to the drivers of dynamic model of competition, which is often discussed in the

literature and is easier to measure and compare between countries. However, during this project these questions came up often and the situation seems to create different opinions and is definitely one of the most important questions of the market reform. Thus, when viewing the retail markets, the customer point of views should be kept in mind. Dynamic market itself does not guarantee benefits for consumers, and it should be considered when planning introducing competition or further improvements. Customers are not generally interested in the market themselves but it should not mean that their role could be forgotten. Therefore, the reform should perhaps focus more also to the customers point of view instead of staring at the common competition indicators.

All in all, even if some progress has already occurred since the introduction of competition into the retail markets, particularly in the Swedish and Norwegian markets but to some extent in the Finnish market as well, there still exists space for improvements and potential for further benefits in all the three markets, especially stemming from the installing of automatic meters and from further integration of the retail markets. The consequences of these future changes are somewhat disputed, although the expectations are mainly positive. It is sure that these renewals will change the retail markets significantly, partially removing some of the current problems, but also creating several new challenges to the market participants.

To conclude, this thesis managed to recognise the factors behind the presumed success of the Norwegian and Swedish markets, which was one of the main objectives, but in addition it was noticed during the research, as a slightly surprising finding, that the Finnish market is not as inefficient as was assumed in the beginning of the research, although the situation is rather problematic in some aspects. Furthermore, the international aspect of the research and the interview survey brought up very clearly and interestingly the varying opinions that can be formed from the markets, which highlights the complex features of the electricity markets and the difficulties connected to the understanding and interpreting the situations. Of course, as in any subject, various opinions occur, but it would seem that electricity markets are especially controversial. The retail markets as a research subject is very

wide and interesting area and there still exists several aspects to be researched, for example, as the situation in the Finnish market turned out to be more complicated than expected and interesting aspects were found, wider analysis could be conducted. In addition, it would be interesting to make a survey, which one of these market designs is the most efficient, if not viewed only with the commonly used competition indicators. Moreover, as one of the most important objectives of market opening is the resulting benefits for consumers, more customer oriented analysis would be valuable.

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Appendix I

List of the interviewees

Norway:

- Nils von der Fehr, Oslo University, 7.8.2008, Oslo
- Frode Otnes, Haflsund, 8.8.2008, Oslo
- Petter Vegard Hansen, Statistics Norway, 11.8.2008, Oslo

Sweden:

- Göran Hindemark, Vattenfall, 13.8.2008, Stockholm
- Stephan Kühr, Yello Strom, 14.8.2008, Stockholm
- Bo Hesselgren, The Swedish Consumer Electricity Advice Bureau, 14.8.2008 Stockholm
- Mikael Bohlin, Kraft & Kultur, 15.8.2008, Stockholm
- Claes Nilsson, Kund Kraft 18.8.2008 Stockholm
- Marielle Liikanen, Energy Markets Inspectorate, 4.9.2008, phone

Finland:

- Merja Pakkanen and Teemu Närvä, VaasaEMG, 20.8.2008, Vaasa
- Pekka Salomaa, Energiateollisuus, 21.8.2008, Helsinki
- Antti Paananen, Energy Market Authority, 28.8.2008, Helsinki
- Arto Rajala, Ministry of Economy and Employment, 27.8.2008, Helsinki
- Aki Koskinen, Fortum Markets, 26.8.2008, Espoo
- Ilkka Salonen, Vattenfall, 2.9.2008, Helsinki