# Report on regulation and the electricity market Norway



**Norwegian Water Resources and Energy Directorate (NVE)** 

30<sup>th</sup> of June 2008

#### 1 Foreword

The Norwegian electricity market was formally opened up for competition when the new energy act came into force the 1st of January 1991. The regulatory tasks are ensured by the Norwegian Water Resources and Energy Directorate (NVE). A regulatory office (department in NVE) was set up in 1990. As electricity regulator, NVE has played an active role in developing network regulation, real market access for all customers, easy procedures for customer switching, security and quality of supply and efficient regulation of system operation.

The development of the Norwegian market has been followed by similar market opening in the other Nordic countries, and today we have an open and integrated electricity market in the Nordic region with a common Nordic power exchange. The Nordic market is also interconnected with the continental European market and Russia.

As an EEA country the EEA procedure regarding transposing of new EU directives applies for Norway. The electricity directive 2003/54/EC and Regulation 1228/2003 passed through the EEA Committee in December 2005.

This report follows the common reporting structure created by the Commission and ERGEG. NVE is a member of CEER and participates as an observer in the ERGEG procedures.

The report does not cover the gas market. The Norwegian downstream gas market is immature and infrastructure is still in a very early development. The gas directive 2003/55/EC passed through the EEA Committee in December 2005. Norway has status as an emergent market.

Marit L. Fossdal

Director Energy and Regulation Department

# **Table of contents**

1	Foreword	2
2	Summary \ Major Developments in the last year	4
2.1	Basic organisational structure and competences of the regulatory agency	4
2.2	Main developments in the electricity market	4
2.3	Major issues dealt with by the regulator	7
3	Regulation and Performance of the Electricity Market	7
3.1	Regulatory Issues	7
3.2	Competition Issues	21
5	Security of Supply	28
6	Public Service Issues	30

# 2 Summary \ Major Developments in the last year

# 2.1 Basic organisational structure and competences of the regulatory agency

NVE has no board, and the Director General is the regulator.

The main statutory objectives for NVE concerning Energy, and which the Regulatory functions is a part of, is to promote social and economic development through efficient and environmentally sound energy production, and promote efficient and reliable transmission, distribution, trade and efficient use of energy.

For NVE, both for regulatory tasks as well as for other tasks, the responsibility and field of work are defined in law, regulations and decisions from the Parliament and Government and from the yearly letter of assignment from the Ministry.

NVE has delegated powers according to the energy act. NVE has powers to issue regulations on economic and technical reporting, network income, market access and network tariffs, neutral behaviour, customer information, metering, settlement and billing, organised physical power exchange, system responsibility, quality of supply, rationing, energy planning and emergency preparedness. NVE can take necessary decisions to fulfil the delegated powers according to the energy act.

NVE has its own legal entity, its own budget and power to act in the scope of its competences. However, NVE is subordinated to the Ministry of Petroleum and Energy, and reports to the Ministry on a regularly basis two or three times a year, according to the letter of assignment. In addition there are several reporting's on an ad hoc basis.

The Ministry of Petroleum and Energy is the body of appeal according to the Public Administration Act.

There is an agreement on co-operation between NVE, the Competition Authority (mergers, etc) and the Financial Supervisory Authority of Norway (financial markets). NVE also has an agreement on co-operation with The Directorate for Civil Protection and Emergency Planning (DSB).

# 2.2 Main developments in the electricity market

#### Wholesale market

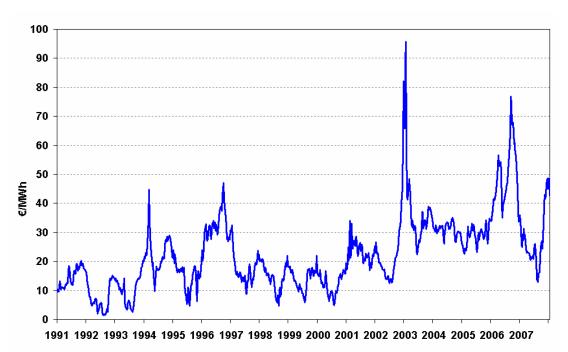
Norway is an integrated part of the Nordic market. As such, in the wholesale market, the Nordic numbers are relevant. In 2007 the Nordic market had a total generation of 397 TWh, and 73 % (291 TWh) of this was traded over the power exchange, Nord Pool Spot. Nord Pool Spot is as such, by far, the largest power exchange in Europe, both in terms of physical volume traded, and in terms of share of underlying market volume. The remaining volume of the Nordic market is traded bilaterally.

NVE is responsible for regulating Nord Pool Spot through the market place licence based on the Norwegian Energy Act (1991).

There is a wide range of derivative power products available in the financial market, varying from future contracts for the next days and weeks to monthly and yearly forwards. The total volume of traded financial contracts at Nord Pool was 1 060 TWh in 2007, and Nord Pool Clearing cleared a total of 2 369 TWh. Nord Pool has 415 members.

The figure shows the price development in the spot market in South Norway from 1991 to 2007

Figure 1 Weekly spot price on Nord Pool Spot 1991-2007



The price spikes in 2002/2003 can be explained by dry summer and autumn with low levels of inflow into the hydro reservoirs, combined with a cold winter. 2007 was a relatively wet year with above average inflows to the hydro reservoirs; consequently the price variations are more moderate.

In 2007 there were 6 companies that had 5 per cent or more of installed available capacity in the Norwegian market. The largest three companies own roughly 40 percent of installed available capacity. When adjusting for direct and indirect financial ownership it increases to about 60 percent.

#### Retail market

The Norwegian retail market is 100 % open to competition and has in principle been so since the Energy Act came into force on 1 January 1991. However, the supply industry is relatively concentrated, with the three largest suppliers in the household market holding a combined market share of about 31 per cent in 2007.

The dominant supplier within a network area is most often a vertically integrated supplier or a supplier within the same corporation as the DSO. The market shares of the dominant suppliers within each network area measured in numbers of metering points vary from 30.4 to 94.5 percent within the household market. Overall, the dominant supplier has over 70 per cent of the household customers in 2008.

#### *Infrastructure*

The new 580 km, 700 MW cable between Norway and the Netherlands has been under testing the first half of 2008. The cable has been open for the market during most of the testing period. The cable will be part of the regulated asset base and incomes for the TSOs in both countries.

#### Regulation/Unbundling

The companies are regulated with one annual revenue cap covering all cost including and annual return on historical capital. From 1 January 2007 NVE introduced a new regulatory regime for network companies. The revenue cap is now based on a yardstick formula where 40 per cent of the companies' actual costs are recovered whilst the remaining 60 per cent follows from a cost norm derived from benchmarking.

The Energy Act has been amended due to the Regulation 1228/2003 and the implementation of the Electricity Directive II in Norway, including the provisions with regard to legal and functional unbundling. These provisions formally entered into force the 1st of July 2007.

There is only one TSO in Norway (Statnett SF). The TSO has been legally unbundled in a separate company since 1992, and has to comply with functional provisions. Statnett publishes its accounts in its annual report and does also report these accounts in detail to NVE. Statnett's offices are not located together with any production or supply activity.

The provision regarding legal and functional unbundling basically applies to undertakings serving more than 100 000 connected customers. There are 7 DSOs in Norway serving more than 100 000 connected customers, and all these companies are already legally unbundled. They also have to comply with functional provisions.

According to the directive, undertakings performing the functions of generation or supply of electricity may own undertakings performing the activity of transmission or distribution. We would like to point out that the practice in Norway is stricter. According to the Energy Act, undertakings performing the functions of generation or supply of electricity may not own undertakings performing the activity of transmission or distribution, and vice versa.

NVE also has the authority to decide that DSOs serving less than 100 000 customers must comply with the provisions on legal and functional unbundling. This question will be assessed and decided on individual basis in cases of mergers, acquisitions and establishment of new activities that implies vertical integration.

#### Security of Supply

Domestic gross consumption in 2007 was 125.8 TWh (122.0 TWh in 2006). The Norwegian peak demand occurs during winter season. The current levels of electricity peak demand for season 2007/2008 was 21 589 MW and measured in February 2008.

The electricity generation in Norway in 2007 was 137.4 TWh, an increase by 15.7 TWh from 2006. At the end of 2007 the mean annual generation in the Norwegian power system (hydro-, wind- and thermal power) is estimated to about 128.9 TWh. Total installed generation capacity (at the end of 2007): 30 303 MW. Available generation capacity during a cold winter is about 25 000 MW.

# 2.3 Major issues dealt with by the regulator

NVE has participated in several projects within the Nordic regulatory co-operation, NordREG. Several reports have been published, with proposals for further harmonization and developments for the Nordic power market. The reports cover issues such as balance management, market monitoring, TSO regulation and a common Nordic retail market.

Regulatory inspections have been completed with Nord Pool Spot, the Marketplace licensee, and several holder of the general electricity trading license. In particular NVE has focused on the neutrality requirement for DSOs, and ensured that the network business cannot in any way favour a related supply business. A number of the network companies' websites have been controlled in this regard. The licence for electricity trade was renewed to most of the companies in 2007. NVE has also worked with alternative models of customer switching procedures.

From 1 January 2007 NVE introduced a new regulatory regime for network companies. The companies are now regulated with one annual revenue cap covering all its operations including the cost of system operation and from which the annual return on historical capital is derived. The revenue cap is based on a yardstick formula where 40 per cent of the companies' actual costs are recovered whilst the remaining 60 per cent follows from a cost norm derived from benchmarking.

There have been completed minor changes in the regulation of the power system responsibility. The network companies are obliged to report on all types of errors in the distribution network. There has also been a revision of the regulation regarding quality of supply. There are new requirements concerning voltage irregularity, as well as reporting of short interruptions.

# 3 Regulation and Performance of the Electricity Market

# 3.1 Regulatory Issues

#### 3.1.1 General

The market opening in Norway is 100 percent and has in principle been so since the Energy Act came into force on January 1<sup>st</sup> 1991. However, in the early stages of market opening there were certain requirements customers had to meet in order to be eligible. Prior to 1995 hourly metering was in practice required in order to change supplier. In addition there were fees strongly limiting the number of switches. All fees were eliminated in 1997 followed by a boost in supplier switching. Around half of all Norwegian households have until now switched at least once. The 1st of January 2008 a new model for supplier switching was implemented. Among the features, it's important to point out that the new model makes it possible to perform a supplier switch in just 6 days. Generally, a supplier switch should take no longer than 2 weeks.

#### **Electricity Market Opening Table**

Year		Threshold GWh/year	% Market Open
	1991		100 %
	1995		100 %
	1997		100 %
	1999		100 %
	2001		100 %
	2003		100 %
	2005		100 %
	2007		100 %

# 3.1.2 Management and Allocation of interconnection capacity and mechanisms to deal with congestion

According to regulations and concessions pursuant to the Energy Act, cross border electricity exchange shall be set out by implicit auctioning. Congestion management is fully integrated with the functioning of the wholesale market and are handled by implicit auctioning through the power exchange (Nord Pool Spot).

Rules governing information from the TSO in the context of congestion management is regulated in the regulations given for the System Operator (Regulations relating to power system responsibility). The relevant information is published at Nord Pool.

The TSO shall, according to the regulation, determine maximum permitted limits for transmission capacity between the elspot areas on an hourly basis (trading limits). The system operator shall provide the trading limits in reasonable time before they are used.

The Nordic System Operation Agreement defines the principles for determining the transmission capacities before spot trade is fixed day-ahead. The TSOs guarantee the firmness of the given day-ahead capacity during operations after the spot market is cleared.

There is still a need to set common Nordic principles and practices as to determination of trading capacities on the borders and solving of congestions inside TSOs own control area.

Because of the hydro dependency, the extent of congestions in Norway fluctuates over time. The table below shows the time (in percentage) were there are price differences between the different elspot areas (the interconnections between elspot areas within Norway and on the cross border interconnections have been congested).

2006		Lower spot price than:							
		NO1	NO2	NO3	Sverige	Finland	Jylland	Sjælland	Kontek
NO1			24	24	24	26	43	28	44
NO2		14		0	14	18	42	21	44
NO3		14	0		14	18	42	21	44
SE	Higher spot	7	4	4		4	35	10	38
FI	price than:	9	6	6	3		37	12	39
DK1		11	13	13	11	12		10	18
DK2		12	10	10	7	9	34		32
Kontek		32	32	32	30	31	32	25	

2007		Lower spot price than:							
20	007	NO1	NO2	NO3	Sverige	Finland	Jylland	Sjælland	Kontek
NO1			10	12	11	13	16	10	18
NO2		43		6	4	8	21	10	21
NO3		42	0		3	7	21	9	20
SE	Higher spot	40	10	14		4	19	6	19
FI	price than:	40	11	13	1		19	6	19
DK1		47	33	34	27	29		15	6
DK2		44	26	28	19	22	23		15
Kontek		61	50	50	45	46	31	31	

NO1: South- Norway (Oslo) NO2: Mid-Norway (Trondheim) NO3: North- Norway (Tromsø)

SE: Sweden

DK1: Denmark (Jutland) DK2: Denmark (Zealand)

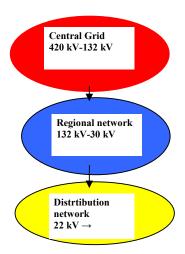
FIN: Finland

# 3.1.3 The regulation of the tasks of transmission and distribution companies

For regulatory purposes, in particular connected to the setting of revenue caps and tariffs, the electricity network is divided into three levels; the central grid (transmission system), the regional grid and the distribution network.

Statnett SF is the TSO, and is responsible for the Central Grid (Transmission) tariffs and the system responsible entity according to the regulations. Statnett SF owns 85 pct. of the components in the Central Grid (measured by its share of the revenue cap). The rest is owned by 25 different companies. The responsibilities of the TSO are not limited to the central grid alone, but can bee extended to regional transmission and even distribution when deemed necessary.

As of January 1 this year there were 159 different companies owning, maintaining and operating components in the regional grid and/or distribution network (Distribution System Operators). A few of these companies have only components in the regional grid, while about one third of the companies own components both in the regional grid and in the distribution network and about 90 only operates local distribution networks. Tariffs are paid at all points in the grid with physical exchange between the network levels, and the network companies pay the same tariffs as end-users connected at the same network level.



Transformation down from the central to the regional transmission level is included in the Central Grid, and thus part of the central transmission tariffs. Transformation down from the Regional transmission level is in most, but not all cases, included in Regional Grid and thus part of the regional transmission tariffs.

#### The decisions on revenue and network tariff levels

All information used in the regulation of revenues, benchmarking/efficiency requirements and qualities of supply are gathered annually from the concessionaires.

The largest part of the technical and economic data is collected annually electronically through a system called eRapp. The reported economic data corresponds to the companies' annual accounts and financial statements, but with a separation in activities and a level of detail adapted to the requirements in the regulation. The reported technical data correspond to the economic figures. This annual report serves three functions:

Ensure a correct allocation of cost and income to the different activities of the network companies.

- The starting point for calculating the cost base used to regulate revenue and tariff levels.
- Control of actual revenue towards allowed revenue or i.e. the direction and sizes of excess billing.

The economic parts of the report give detailed information about the costs connected with the different activities and the corresponding incomes. The report also contains the assets profit and loss statement, asset property and equity and debt overviews. It also gives insight into the development of the excess income (difference between actual and allowed revenue) and on the cost of energy not supplied (CENS). Finally the report contains information about the different tariff components per customer group.

The technical data reported are customer specific data such as type and number of customers, delivered energy, network losses and technical network information, such as length and type of lines and cables and number of transformer and metres etc.

In addition separate reports are collected on the length and number of interruptions, the amount and cost of energy not supplied (CENS) etc. and the length, type and capacity of lines, transformers and switches in the regional and central grid.

The reported economic data are verified by national auditors and controlled by NVE and used as a basis for the annual decision regarding over or under billing. The technical data are controlled by NVE through site visits, auditing their technical component registers and other comparable sources.

On January 1st of 2007 a revenue cap (RC) regulation based on a yardstick formula was introduced. The RC yardstick formula is based on 40 pct. cost recovery ( $C_{t-2}$ ) and 60 pct. of the cost norm ( $C_{t-2}^*$ ) resulting from the benchmarking exercises, with a two year lag.

(1) 
$$RC_t = 0.4 *C_{t-2} + 0.6 *C_{t-2}^*$$

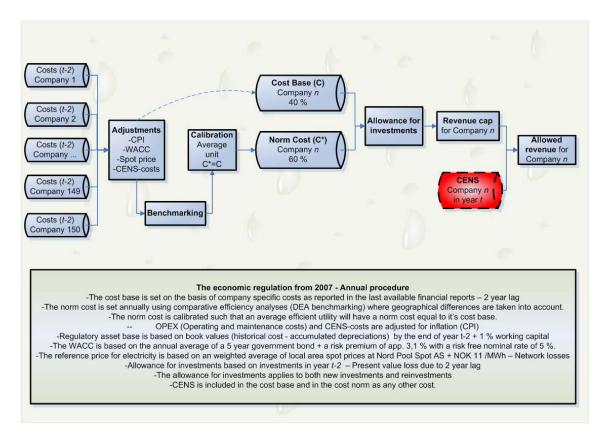
The norm is based on separate benchmarking analyses for the Distribution System Operators (DSO), Regional transmission and the TSO. The benchmarking exercises of the DSO's and Regional transmission are both based on Data Envelopment Analysis (DEA). The norm for Statnett SF is based on an international benchmarking of TSO's applying a model called ECOM+. The Ecom+ model is based on a value chain approach, benchmarking only the cost of operation and maintenance (OPEX), and the acquirement and building of the lines (CAPEX).

An illustration of the regulation is presented in the figure below. The cost base for the revenue caps for year t is the sum of operating and maintenance costs, depreciation, the cost of the physical losses and the cost of Energy Not Supplied (CENS) from t-2. Furthermore the cost norms are calibrated, making sure the average annual return for all the regulated network companies is equal to the annual rate of return following from the WACC model. In addition a correction factor is applied in order to adjust for investment not included in the revenue cap due to the two year lag.

The Norwegian transmission system operator Statnett SF is regulated based on the same yardstick formula. However as a TSO the revenue cap also include a fixed annual budget to cover the cost related to the system operation. Given the annual budget the TSO has to fully

cover losses and receives the profit related to the system operation cost. In addition to this the TSO has to publish a report on its system operation activities and the development of cost according to the budget both during and at the end of the year.

The revenue caps including the norm costs are set ex ante and corrected for inflation and rate of return ex post. The regulation introduced in 2007 will be evaluated after 5 year, which means 2011.

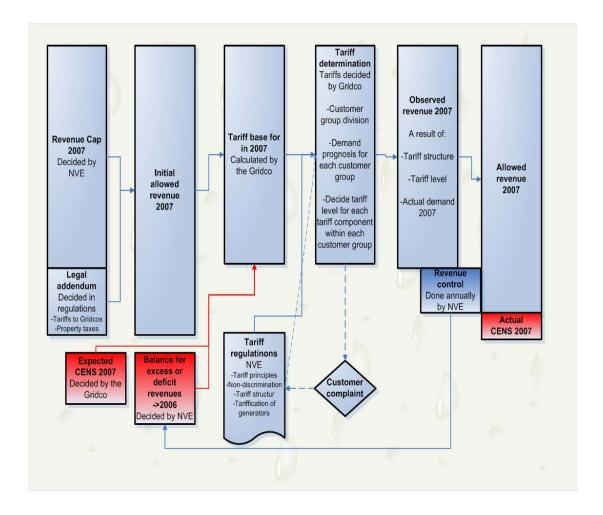


Within the framework of regulations of tariff structure given by the NVE, the network companies are responsible for the actual tariff levels in their network, given their expected revenue cap and CENS for the coming year. Complaints and disputes regarding the regulation, including the tariffs are handled by NVE.

All network companies are required to report tariffs, and changes over the year, to NVE. Statistics on network tariffs in the regional grids and the distribution networks are published.

NVE examines each year whether the network company has acquired higher revenue through their tariffs than what follows from the revenue cap exclusive the actual CENS for that year.

The Regulator will make a legally binding decision, obligating the company to pay back their excessive billing to the customers by lowering the tariffs in the following years. When the opposite occurs the companies *can* recover the lower income from the customers through higher tariffs the following years. This process is described in the figure below.



#### Tariff structure

The general principles for the tariff structure are the same for all network levels. In addition to the current tariff, network companies may charge an investment contribution to cover the costs of new network connections.

The tariff structure consists of different components such as a usage-dependent energy component and a fixed component. Interruptible transmission is offered reduced tariffs.

As a main rule, the energy component shall be time differentiated and set based on the cost of marginal network losses. For ordinary drawing of power in the distribution network, it may in addition cover a share of the other costs not covered by the fixed component.

Other components shall cover network costs that are not covered by usage dependent tariff components.

For feeding into the network the fixed component of the tariff is independent of the grid level of connection. The central grid's tariff for feeding into the network shall be independent of which level in the production facility is connected to the. The fixed feed in tariff was 0.7

€MWh (in 2007). In some areas new generation has a reduced feed in tariff of 0.125 €MWh (8 NOK/ €) due to capacity restrictions in the network.

The residual component for drawing power from the central and regional grids is based on average consumption in the max load hour the last five years corrected by a factor "k". The "k" factor takes into account the ratio between consumption and production in each connection point.

Other components for ordinary drawing of power from the distribution network consist of a fixed annual amount per customer, which cover customer- specific costs and a share of network costs that are not covered by the usage dependent tariff components. The fixed component may be differentiated between customer groups. Customers with maximum demand metering shall be charged a load component in addition to the energy component and the fixed component.

#### Estimated national average network charges for 2007

The estimated network charges are given corresponding to the following Eurostat definitions of typical customers:

- Dc: household customer with annual consumption of **3 500 kWh/year**, of which 1300 kWh by night
- Ib: commercial customer with annual consumption of 50 MWh / year, maximum demand 50 KW
- Ig: industrial customer with annual consumption of 24 GWh/ year, maximum demand 4000 KW
- Typical household (energy sold to households divided by number of households or household metering points)

#### (Euro/MWh)

Categories/Eurostat customer definition	Dc *)	Ib	Ig
Network charges (excl. all regulatory levies)	72.3	24.1	13.67
Regulatory levies on network charges **)	14.4	1.8	1.8

<sup>\*)</sup> An average Norwegian household has a yearly consumption of about 16 000 kWh. Based on this, the network charges for a typical Norwegian household are 29.4 Euro/MWh, excl. all regulatory levies (se table below). The reason for this considerable difference is that the fixed component is a fixed annual amount per customer that is not covered by usage dependent tariff components.

<sup>\*\*)</sup> Levies comprise general electricity tax and environmental energy funding

#### Typical Norwegian household (16.000 kWh):

(Euro/MWh)

Typical Norwegian household	
Network charges (excl. all regulatory levies)	29.4
Regulatory levies on network charges	14.4

#### **Interruptions**

In Norway, network companies have been obliged to report specific data on interruptions since 1995. However, data are not all reported with reference to end users. Some data are reported with reference to *reporting points*. A *reporting point* is a distribution transformer or an end user connected above 1 kV. Further, only incidents in networks above 1 kV are reported. Mainly the following data are reported for long and short interruptions starting from 1995 and 2005 respectively.

- Number (ref reporting point + ref end user from 2005)
- Duration (ref reporting point + ref end user from 2005)
- Interrupted power (from 2006)
- Energy not supplied (ENS)
- SAIDI, SAIFI, CAIDI, CTAIDI, CAIFI (from 2005)
- Notified and non-notified

Common indices with reference to customers are presented in Table 1 as regards long interruptions. SAIDI and SAIFI represent respectively the mean duration and the mean frequency of long interruptions experienced by Norwegian end users. CAIDI represents the mean duration of each (single) long interruption.

	SAIDI [hours]	SAIFI	CTAIDI [hours]	CAIDI [hours]	CAIFI
2005	2.3	1.9	2.9	1.2	2.4
2006	2.6	2.1	4.6	1.3	3.4
2007	2.4	2.0	3.6	1.2	3.1

Table 1: Continuity of supply indices with reference to the end users as regards long interruptions in Norway.

Energy not supplied is today reported divided into 27 end user groups, and are a direct contribution to our financial incentive based scheme on continuity of supply (the CENS arrangement). Under the current regulation interruption costs for different customer groups are divided into six groups. All collecting of data, reporting and calculation of indices are standardised. A standardised system is important in order to get the large amount of network companies to collect and report and calculate the different indices in the same unique way. Energy not supplied is calculated taking into account a lot of factors and by using customers'

load profiles. Hence, energy not supplied is the energy that would have been supplied during the interruption if it hadn't occurred in the first place.

The development in the energy not supplied relative to the energy supplied gives a good indication of the development in the historical level of continuity of supply in the power system.

The main objective of the CENS arrangement is to give the network owners incentives to operate and maintain their networks in a socio-economic optimal way and thereby provide an acceptable level of reliability. The companies are forced to internalise the customers' costs related to interruption.

Energy supplied and energy not supplied is presented in Table 2.

Year	Energy supplied GWh	Energy not supplied - notified interruptions GWh	Energy not supplied - non-notified interruptions GWh	Energy not supplied in total GWh
1996	98571	16.8	15.8	32.6
1997	101987	16.5	24.0	40.5
1998	106228	13.9	13.6	27.6
1999	106525	11.8	19.0	30.8
2000	104193	8.9	18.1	27.0
2001	108361	5.1	14.2	19.3
2002	107656	4.9	15.0	19.9
2003	105145	4.9	16.9	21.8
2004	109306	4.4	11.6	16.0
2005	111804	5.7	9.9	15.6
2006	106380	4.1	11.7	15.8
2007	109 712	4.7	10.1	14.8

Table 2: Energy supplied and energy not supplied to end users in Norway since 1995, as regards long interruptions.

Two major incidents occurred in 2003 and 2006, caused by hurricane, resulting in a high amount of energy not supplied even when energy supplied had a normal level. Figure 1 shows the development of energy not supplied in per thousand of energy supplied for the last 13 years in Norway.

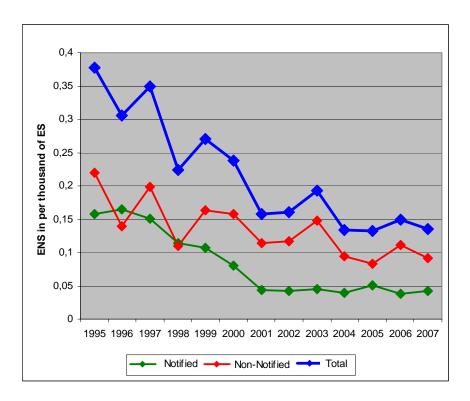


Figure 1: Energy not supplied (ENS) in per thousand of the energy supplied (ES) to end users in Norway since 1995.

#### **Balancing**

The market for real time balancing or the Regulation Power Market is the main instrument for the Norwegian TSO Statnett to ensure the momentary balance in the power system. The balancing arrangements are designed by Statnett according to the principles set by NVE in the Regulations relating to the System Responsibility.

The Norwegian Balancing Market is integrated with the Nordic Balancing Market as long as there are no constraints between the markets. The Nordic TSOs have a joint System Operation Agreement which lay down the principles for balancing the system. This agreement is revised every year, and NVE is to be informed about every revision. Whenever there are amendments in this agreement that has a direct impact on the exchange of electricity across the national border, these are to be approved by NVE.

All players that are able to activate an object of at least 25 MW for up or down regulation within 15 minutes notice, may participate as *active* players in this Balancing Market. In addition to hydro power plants with some reservoir capacity, the active players comprise some major industrial consumers – in total about 30 players. These players submit their bids for up or down regulation on the day ahead. The TSO organises this market place on a merit order basis. The market clearing price is the price of the marginal bid that is called for.

All players in the wholesale market are required to sign a Balance Agreement with the TSO about the terms of settlement in the Balancing Market, i.e. to be a so called Balance

Responsible Party, BRP. This means that all BRPs are passive players in the Balancing Market when it comes to the settlement of imbalances.

Balancing intervals in minutes

The bids for active up or down regulation in the Balancing Market are to be submitted to the TSO in one hour intervals.

Relevant balancing areas

The active players in the Balancing Market submit their bids allocated to an elspot area. Norway is normally divided into at least two elspot areas. The TSO selects the most economical bids according to the merit order list, among those that are technically suitable. West-Denmark, East Denmark, Finland and Sweden constitute separate elspot areas. When there is no congestion between the Nordic elspot areas within the operational hour, the total Nordic synchronic area is the relevant balancing area. When congestion occurs between elspot areas, however, the relevant balancing area is reduced to the neighbouring elspot areas without internal congestion or even to single elspot areas.

Interaction between areas, whether bids from other areas or MS can be accepted by TSOs and to what extent this occurs.

According to the Nordic System Agreement the Nordic TSOs share balancing resources. Balancing energy is to be called for from the most economically and technically appropriate resource. This is achieved through the concept of a "Super TSO" comprising Statnett and Svenska Kraftnät in cooperation. This means that the two TSOs stay in close contact through their control rooms through the day about the frequency regulation within the Nordel area.

*Gate closure time (GCT)* 

The gate closure of submitting bids for the active players in the Balancing Market is one hour before the operational hour.

Opportunities of intra-day trading and revision of nominations

The balancing market is the only market of intra-day trading in the Norwegian area. The production schedules of the intended production summarizing the player's commitments and rights within each elspot area constitute the basis for the settlement of imbalances<sup>2</sup> within the operational hour. The production schedules are to be submitted to the TSO at 19.00 the day ahead of operation.

Revisions of both the active bids in the balancing market as well as the production plans may be revised up to one hour before the operational hour when approved by the TSO.

Both the prices in the Elspot Market – the day ahead spot market – and the Balancing Market are notified in one hour intervals.

Typical prices charged to network uses to resolve imbalances

The small participants and entrants needs in the Norwegian Balancing Market are taken into account by a single price model of imbalances and no fixed fees.

The single price model of imbalances means that the price of a player's imbalance exactly reflects the marginal social cost of the counterbalancing. Thus, the BRPs (Balancing Responsible) pay no penalty fee of being in imbalance. The prices for imbalances in the Norwegian market might typically vary in the interval from +/- 1% to +/-15 % deviation from the elspot price.

Additionally, the BRPs pay a volume fee of 0.075 euro/MWh of imbalances in the settlement process.

This pricing policy in the Balancing Market has lead to low entry barriers so that even relatively small producers and most suppliers are BRPs themselves. At the moment there are more than 130 BRPs in the Norwegian wholesale market.

The process and timetable for settlement of imbalances

The entity with settlement responsibility, the Norwegian TSO, calculates the volumes of imbalances of each BRP every hour.

The imbalances are to be calculated on the basis of the following types of information:

1. Data from the distribution system operators (DSOs):

The DSOs shall calculate regulating power balance for each BRP in its grid and transmit the settlement data for the regulating power balance<sup>1</sup> to the TSO. Settlement data for the regulating power balance shall be transmitted within three working-days of the end of the settlement week. The settlement data<sup>2</sup> for regulating power balance shall be stated in whole kWh/h.

2. Purchase and sales obligations in the organised market

The marketplace licencee (Nord Pool Spot) shall transmit to the TSO an overview of the purchase and sales obligations in the organised markets of every BRP. Purchase and sales obligations shall be transmitted within three days of the end of the settlement week.

3. Purchase and sales obligations outside the organised markets

The BRPs shall transmit to the TSO, an overview of their purchases and sales obligations outside the organised markets, within three days of the end of the settlement week.

19

<sup>&</sup>lt;sup>1</sup> The regulating power balance, i.e. the imbalance, is the deviation between the fed-in and/or withdrawn volume of power and the purchase and/or sales obligations for each entity with balancing responsibility (BRP).

<sup>&</sup>lt;sup>2</sup>The settlement data for regulating power balance, i.e. the imbalance is the sum per hour of hourly metered values of the individual BRP added to the said BRP's volume share of the adjusted system load profile per hour.

The TSO shall on the basis of these reported data, calculate payment obligations or credit calculations for each individual BRP on the basis of its regulating power balance. Payment obligations or credit balances shall be based on the prices in the Balancing Market (i.e. the Regulating Power Market). Each individual BRP shall be notified of payment obligations and credit balances within nine working-days after the closure of the settlement week.

#### 3.1.4 Effective unbundling

The Energy Act has been amended due to the Regulation 1228/2003 and the implementation of the Electricity Directive II in Norway, including the provisions with regard to legal and functional unbundling. These provisions formally entered into force the 1st of July 2007.

There is only one TSO in Norway (Statnett SF). The TSO has been legally unbundled since 1992, and has to comply with functional provisions. Statnett publishes its accounts in its annual report and does also report these accounts in detail to NVE.

Statnett SF is state-owned and not part of a vertically integrated undertaking. Statnett's offices are not located together with any production or supply.

The provision with regard to legal and functional unbundling basically applies to undertakings serving more than 100 000 connected customers. There are 7 DSOs in Norway serving more than 100 000 connected customers, and all these companies are already legally unbundled. They also have to comply with functional provisions.

According to the directive, undertakings performing the functions of generation or supply of electricity may own undertakings performing the activity of transmission or distribution. The practice in Norway is stricter than the requirements in the directive. According to the Energy Act, undertakings performing the functions of generation or supply of electricity may not own undertakings performing the activity of transmission or distribution, and vice versa.

NVE also has the authority to decide that DSOs serving less than 100 000 customers must comply with the provisions on legal and functional unbundling. This question will be assessed and decided on individual basis in cases of mergers, acquisitions and establishment of new activities that implies vertical integration.

There are 159 DSOs in Norway and they are mainly in public ownership. The local municipalities have ownership interests in about 80 percent of the DSOs. Private ownership is represented in about 40 percent and 14 DSOs are completely private. The majority of the ones in completely private ownership are owned by the consumers themselves through cooperatives. The government and the county municipalities are represented in about 10 percent of the DSOs.

As mentioned, in case of mergers, acquisitions and establishment of new activities that involves vertical integration, restructuring of the company into separate companies for monopoly activities (network) and activities subject to competition (production and trade/supply) may be required.

The DSO is obliged to publish unbundled accounts in the annual report; information about capital employed, operating result and rate of return for the network-activities must be stated.

In addition, NVE is publishing data for the network-activities from all the network companies, profit and loss statements and balance sheets.

All network-companies, suppliers and production utilities have to submit annual financial and technical data to NVE. This reporting must be kept in accordance with requirements given in the energy act and regulations to the act. In addition, NVE gives detailed guidelines. In case a company doesn't submit the reporting in time, NVE might issue a compulsory fine until the company has submitted the reporting to NVE. NVE also has the possibility to make a decision on what the figures should be if a company doesn't accomplish the reporting in accordance with the requirements.

The unbundled accounts of the DSOs have to be validated by the company's Certified Public Accountant (CPA), who must conduct certain controls and sign a statement. The CPA must control that the reporting is in accordance with certain requirements and with the company's annual report.

All network-companies, suppliers and production utilities are obliged to hold a concession issued by NVE. If the concessionaire violates the energy act or regulations pursuant to the act, NVE has the possibility to withdraw the concession. In the case of a DSO which is not in compliance with the regulations, NVE has the possibility of issuing a current fine which will enter into force if the DSO continues to breach the regulations after a certain date. For some issues, NVE has also the authority to issue compulsory fines to DSOs which have breached certain parts of the energy regulations. In severe cases, legal prosecution is an option.

# 3.2 Competition Issues

## 3.2.1 Description of the wholesale market

#### Description of the structure of the generation and wholesale market

The Norwegian wholesale market is integrated in the Nordic wholesale market through market coupling and a common power exchange, Nord Pool Spot. In 2007 the total Nordic production was 393 TWh, and the Nordic consumption was 396 TWh. These are both record high numbers. The total consumption in Norway in 2007 was 121.4 TWh (122.5 TWh in 2006) Peak demand was 21 450 MW in 2007.

In 2007 the total net generation in Norway was 137.4 TWh (121.7 TWh in 2006). Out of this over 98 per cent (134.4 TWh) was generated by hydro plant. 2007 was a relatively wet year which meant above average inflow to the hydro reservoirs in Norway.

When there are no bottlenecks in the Nordic electricity market, the whole area can be recognised as the relevant market with a total installed generation capacity of 94 313 MW (2007). However, due to bottlenecks Norway is normally divided into two price areas (at the present it's three due to a supply deficit in the central region of Norway) with total installed generation capacity of 30 313 MW.

There are six companies that have 5 per cent or more of installed net generating capacity.

The Nordic market consists of hydro, nuclear, wind and various conventional thermal power producers. The hydrological situation and hydropower production possibilities determine to what extent other generation sources are demanded. In a seasonal context this determines the value of the water which is the opportunity cost of production in the future. In the short-term hydro produces little when demand (and prices) is low and much when demand is high. In some cases the hydropower flexibility is large enough to level out price differences over the day. In winter peak periods, however, prices may be set by peak thermal capacity.

The flexibility of the hydro system with low start stop costs and high storage capacity, especially in the Norwegian reservoirs, gives relatively small price variation between day and night. However, there can be grate variations in prices between seasons and from year to year, due to huge variations in precipitation and inflow from one year to another and one season to another.

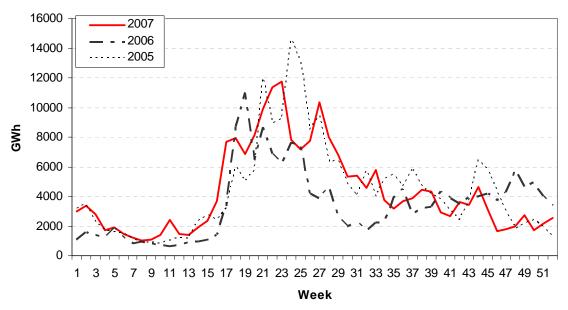


Figure 1: Effective inflow to the Nordic water reservoirs, 2005-2007 Source: Nord Pool

The Nordic countries have a joint market place for power, Nord Pool Spot. In 2007, more than 70 per cent (291 TWh out of 396 TWh) of the total Nordic consumption was traded over Nord Pool Spot. Nord Pool Spot is as such, by far, the largest power exchange in Europe, both in terms of physical volume traded, and in terms of share of underlying market volume. The remaining volume of the Nordic market is traded bilaterally.

NVE is responsible for regulating Nord Pool Spot through the market place licence based on the Norwegian Energy Act (1990).

There is a wide range of derivative power products available in the financial market, varying from future contracts for the next days and weeks to monthly and yearly forwards. The total volume of traded financial contracts at Nord Pool was 1 060 TWh in 2007, and Nord Pool Clearing cleared a total of 2 369 TWh. Nord Pool has 415 members.

#### 3.2.2 Description of the retail market

Each entity operating in the electricity market and/or in the network business is required to hold a trading licence. Status in May 2007 was that the Norwegian Water Resources and Energy Directorate (NVE) kept 477 trading concessions under surveillance. In week 25 there were 31 suppliers with offers in all grid areas in Norway. Some of these nation wide suppliers are old incumbent suppliers while others are independent suppliers established after liberalisation. The number of residential customers with suppliers other than their local supplier has steadily increased over time. About 665 000 customers in the household market was registered with another supplier than incumbent supplier at the beginning of 2008. This is about 29 percent of all metering point in the household market.

The dominant supplier within a network area is most often a vertically integrated supplier or a supplier within the same corporation as the DSO. The market shares of the dominant suppliers within each grid area measured in numbers of metering points vary from 30.4 to 94.5 percent within the household market. Overall, the dominant supplier has 71.1 percent of the household customers in 2008.

In 2006 Norwegian households consumed 35.1 TWh of electricity.<sup>3</sup> (Data for 2007 is not available). Totally, the electricity consumption in 2006 was 122.5 TWh.

By 2007 75.5 percent of the DSOs in the Norwegian energy sector are vertically integrated.

### Steps and status of market opening

The Energy Act of 1990 opened up the possibility of consumer switching in Norway. There was a maximum switching charge of NOK 5.000 preventing most household customers from switching. The maximum switching charge was reduced to NOK 4.000 in 1994, but it was not until the next year that the retail market was practically opened up in Norway. In 1995 consumers could switch supplier every quarter and the maximum charge was reduced to NOK 246. Still each supplier had to pay a fee of NOK 4.000 per distribution area where it was active. These fees prevented the development of a true retail market in Norway. In 1996 the fees were all removed and in 1998 consumers could change supplier on a weekly basis.

Until 1997 there had been only 2.500 consumer switches in the Norwegian household market. Since then the activity in the retail market has increased significantly. In the third quarter of 2004 the accumulated number of switches since 1997 passed 1.5 million. In 2003 there was a record high of 441,000 switches due to great differences in margins between different suppliers after a rapid increase in household prices following the high spot price of the winter 2002/2003. In 2007 we saw approximately 198 000 household consumer switching suppliers in Norway. In the business market there were roughly 20 000 switches last year. There are just about 2.6 million metering points in Norway. Totally since 1997 there have been just about 1 840 941 customer switches in the household market. In the business market there have been 213 916 switches since 1999.

Companies with a market share above 5 % and market share of the three largest companies

<sup>&</sup>lt;sup>3</sup> Including agriculture

In the whole retail market there are 5 companies with a market share above 5 %.

The largest three companies in the whole retail market have a market share of 31.2 %.

#### Integration between generators and suppliers

A larger part of the suppliers are integrated in company structures with generators.

# Suppliers without any affiliate connection to TSO or DSO since the introduction of competition

There are approximately 5 independent suppliers in the household market. None of these suppliers have market shares over 4 percent measured in amount of total realized volume.

#### **Customer switching procedures**

A new model for supplier switching was implemented the 1<sup>st</sup> of January 2008. The Norwegian end-user market is characterized by its high degree of competition. In this context, the new model is expected to enhance and make the end-user market more efficient. Under the new model the switching process should take no longer than two weeks, involving end-users, DSOs and suppliers.

Data for the first quarter of 2008 shows that there were performed about 42 800 supplier switches.

#### Prices and tariffs 2007

Categories/Eurostat customer definition	Dc *)	lb	lg
Network charges	72.3	24.1	13.7
Levies **)			
·	14.4	1.8	1.8
Energy price	35.0	29.1	29.1
Taxes ***)	30.4	13.8	11.2
Total (Euro/MWh)			
	150.1	68.8	55.8

<sup>\*)</sup> Based on the estimated household customer with annual consumption of 3 500 KWh/ year. But in reality, an average Norwegian household has a yearly consumption of about 16 000 kWh. Based on this, the network charges for a typical Norwegian household are 29.4 Euro/MWh (see table below). The reason for this considerable difference is that the fixed component is a fixed annual amount per customer that is not covered by usage dependent tariff components.

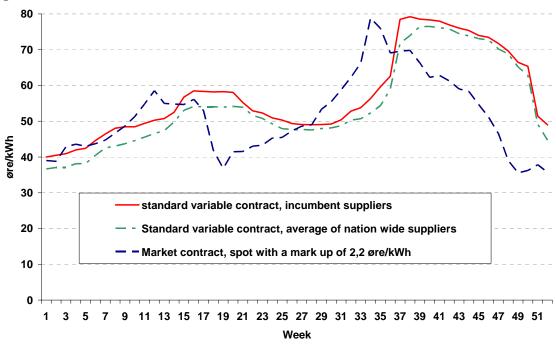
<sup>\*\*)</sup> Levies comprise general electricity tax and environmental energy funding.

<sup>\*\*\*)</sup> Value added tax (VAT)

#### **Typical Norwegian household:**

Typical Norwegian household	
Network charges	29.4
Levies	
	14.4
Energy price	35.0
Taxes	19.7
Total (Euro/MWh)	
,	98.5

Figure 2 Price levels 2007 household contracts:



The figure shows price development in main contracts for household customers in 2007 inclusive value added tax. Standard variable contract is default. Approximately 50 percent of the household customers had a standard variable contract in 2007. In comparison, roughly 37 percent of the customers had a market contract in 2007. The rest had a fixed priced contract, normally of one year duration. On average nation wide suppliers had a lower price than incumbent suppliers. That is, vertically integrated suppliers or suppliers with in the same group of companies as the DSO.

#### 3.2.3 Measures to avoid abuses of dominance

General Competition legislation (The Norwegian Competition Act and the competition rules applicable to undertakings of the EEA Agreement) apply and the Norwegian Competition Authority has full responsibility.

The physical power exchange, Nord Pool Spot AS, operates under a market place licence given by NVE. The following describes the relevant framework for 2007.

#### Rules governing conduct of generation companies in the wholesale markets including;

- transparency (which information on availability is required, how near to real time, forecasts)
  - o The standard term for trading in Nord Pool Spot AS' physical markets includes rules for disclosure of information. Participants (both generators and other participants trading in the market) shall immediately disclose to NPS any of the information specified below (price relevant information):
    - Any matters related to the relevant entity's business in the markets that are likely to have a substantial impact on the prices. This does not, however, apply to information regarding own plans and strategies for trading. If the participant or the clearing customer concerned is in doubt as to whether a matter constitutes price relevant information, he shall contact NPS in order to be advised on how to handle the situation.
    - The following matters relevant to plants or facilities for production, consumption or transmission within or directly connected to the Nordic electricity exchange area, of which the participant or clearing customer concerned owns or controls in whole or in part:
      - Any plans or changes of plans for maintenances or limitations concerning more than 200 MW in the next 6-week period, as soon as the plan has been adopted by the proper corporate body.
      - Any plans and changes of plans for maintenance or limitations concerning more than 400 MW to plants or facilities for production, use or transmission for the current year and three years forward, as soon as the plan has been adopted by the proper corporate body.
      - Any outage or failure concerning more than 200 MW, as soon as possible and under no circumstances later than 60 minutes after the event occurred. The requirement on reporting within 60 minutes does not apply between 8:00 pm and 7:00 am. The participant or the clearing customer concerned shall within 4 hours after the event occurred inform NPS of the cause of the event based on available information, as well as of the duration of the outage or failure
    - Nord Pool Spot publishes total volumes for demand and supply in each hour, transmission capacity between elspot areas within the exchange area, elspot system prices, local prices and prices on financial products.

- bidding behaviour,
  - o The standard terms for trading in Nord Pool Spot AS' physical markets includes rules for bidding
  - o See also "market surveillance"
- market surveillance,
  - O As a regulated exchange and market place, Nord Pool Spot has an obligation to provide market surveillance. Nord Pool Market Surveillance monitors trading activities and market conduct on Nord Pool's spot market and market for financial power contracts. Nord Pool must ensure that market participants play by the rules to maintain the markets confidence in the exchange. Consequently, all transactions are monitored as to comply with participants' duty to disclose price-sensitive information to the market, and to avoid prohibited insider trading, price manipulation, or unfair exercise of market power.
  - o Further, NVE and the Norwegian Competition Authority are using a model for monitoring of the competition in the market where the actual market price should be compared with an expected price calculated from model simulations of efficient utilisation of reservoir-water. Differences that can not be explained as price-taker behaviour should be investigated by looking at the different participants bidding on the market place.
- experience with virtual power plant auctions or other capacity release measures
  - o No experience

#### Rules governing conduct of supply companies including;

- transparency,
  - According to requirements in the legislation managed by the Norwegian Competition Authority, supply companies must publish their prices on certain standard products/contracts offered to household customers at a website for price comparison.
- rules concerning contract structure,
  - The regulations to the energy act require a written supply contract between the supplier and the end-user. The Norwegian Electricity Industry Association and the Norwegian Consumer Council have worked out standard contracts.
- provision of information.
  - o The supply company must give 2 weeks notice before changing the price of standard variable contracts.

# 5 Security of Supply

# **5.1 Electricity**

### A general description of supply and demand

#### Electricity peak demand

Domestic gross consumption in 2007 was 125.8 TWh (122.0 TWh in 2006).

The Norwegian peak demand occurs during winter season. The current levels of electricity peak demand for season 2007/2008 was 21 589 MW and measured in February 2008.

The table below shows the peak demand for the last 6 seasons.

				Demand
Year	Weekday	Date	Hour	[MW]
2002	Friday	04.01.2002	11	20 689
2003	Monday	06.01.2003	10	19 085
2004	Monday	21.01.2004	9	20 675
2005	Wednesday	03.02.2005	9	21 401
2006	Monday	06.03.2006	9	21 575
2007	Wednesday	21.02.2007	19	21 450
2008	Thursday	14.02.2008	10	21 589

According to demand forecast developed by the Norwegian TSO, Statnett, the excepted peak demand for Norway season 2011/2012 will be 24 000 MW with temperatures corresponding to a ten years winter day. The same forecast based on average winter temperatures shows a excepted peak demand of 22850 MW.

#### Currently available generation capacity

The electricity generation in Norway in 2007 was 137.4 TWh, an increase by 15.7 TWh from 2006. At the end of 2007 the mean annual generation in the Norwegian power system (hydro-, wind- and thermal power) is estimated to about 128.9 TWh. For hydro- and wind power only, the mean annual generation is 123 TWh. Due to hydro dependency the generation from hydro power will vary between 90 and 150 TWh dependent on the precipitation and inflow from year to another.

Total installed generation capacity (at the end of 2007): 30 303 MW. Available generation capacity during a cold winter is about 25 000 MW.

#### **Current and excepted generation fuel mix**

The generation capacity can be broken down as follows:

Hydro: 29 028 MW Wind: 385 MW Thermal: 890 MW

Expected increase in generation capacity in 2008

Hydro: 350 MW Wind 40 MW Natural gas 150 MW

Expected developments (2008 included) as of 31.12.2007:

	Hydro	Wind	Natural gas
Currently under construction:	432 MW	40 MW	580 MW
Authorised:	780 MW	1400 MW	1720 MW

Assumed forthcoming generation investment for the next three years:

For the next three years:	Hydro	Wind	Natural gas
2009:	400 MW		150 MW
2010:	250 MW	150	280 MW
2011	250 MW		

#### Actual investment commissioning during 2007

Net changes in generation capacity during 2007 have been the commissioning of 310 MW hydro powers and 60 MW wind power.

### A description of the role of regulatory or other authorities

#### Authorisation criteria for new generation investments and long term planning

For all new projects (wind power plants, gas power plants, hydro power plants, power lines, transformers) development concession must be granted. The regulatory authority, NVE, is delegated authority for licensing energy installations. For all projects NVE consider the project economy, public and private interests and environmental issues. For larger projects a more extensive process EIA (Environmental impact assessment) is required.

The regulatory authority has delegated responsibility for power system studies to appointed concessionaire in a given grid area. The main task of the work on the power system studies is to contribute to a socio-economic rational (assumed correct) development of the regional grids and the national grid. In this connection the energy carriers in question are for stationary energy usage. The power system studies will continue to be an important base document in the regulator NVEs handling of the applications for a concession to erect an energy plant or installation. This is especially of importance regarding applications for the larger overhead line projects.

#### Implicit and explicit incentives

In special regional areas with constraints in transmission capacity Statnett has introduced a "grid efficiency phasing-in tariff". This will give a reduced grid leasing tariff on new production facilities localised within certain areas, compared with the current level, for a period of 15 years. The criteria that must be satisfied in order to be eligible for the phasing-in tariff are that new production must be established within those areas and within those energy volumes where it is documented that new production will bring grid savings.

## Progress in major infrastructure projects

The new 580 km, 700 MW cable between Norway and the Netherlands hase been under testing first half 2008. The cable has been open for the market during most of the testing period. The cable will be part of the regulated asset base and incomes for the TSOs in both countries.

A license application from Statnett SF for a new 25 km 420 kV OH line from Nea eastwards to the border with Sweden has reached concession and investment decision. The OH line will also be renewed from the border to Järpströmmen in Sweden by Svenska Kraftnät. The new OH line removes a bottleneck by replacing the existing 300 kV OH line, which is an upgrade from 220 kV and cannot be upgraded further.

#### The TSO processes for planning new network

The grid system planning process in Norway is made compulsory from the regulator through power system studies. The country is divided in 17 regional planning areas where one of the DSO's has the responsibility of coordinating the planning process among the DSO's in the area, and make a regional grid development study.

In the national grid the TSO (Statnett) has the responsibility for the planning process and issuing of the national grid study. The yearly updated grid studies are submitted to the regulator (NVE) for consent. The study period for the grid development is minimum 10 year. The measures to improve upon the grid are only a part of a study that also covers other topics as energy and plant statistics, security of supply, spare parts situation, environmental, economical and technical presumptions, specific circumstances for the area, description of the existing grid, operating conditions, tariffs and future grid development.

The studies must describe bottlenecks, and how operational situations may create and influence congestion situations in the grid. Measures to reduce or eliminate congestions in the grid are one goal of the study. Congestion management in the operational phase and the market issues of the grid development including costs of congestion situations are not part of the studies. When applying for a concession to build, the applied solution must be part of the latest grid study submitted to the regulator.

#### 6 Public Service Issues

Public Service Issues (PSI) are in general taken care of in acts, regulations and the contracts between the customer and each network company / electricity supplier. The utilities common association and the Office of the Consumer Ombudsman have negotiated standard agreements

which set up a balanced set of conditions. There are separate agreements for connection and use of the grid system, and electricity supply. Some utilities practices may be at variance with these agreements.

Regarding labelling of primary energy source, the requirements have been implemented in regulation and came into force from the 1<sup>st</sup> of January 2007. The practical implementation is under consideration as amendments in existing regulations.

The obligations set out in Annex A are fulfilled in the Norwegian system. Reference is made to the updated table of correspondence as submitted to the Authority by letter of 7<sup>th</sup> of April 2008 from the MPE.

To secure appropriate treatment of vulnerable customers, all distribution companies in Norway have an obligation to be supplier of last resort. In addition, the social security system takes care of those unable to pay for necessities. There are no data available on the number of disconnections in Norway.

In Norway there are no regulations of end user prices for electricity supply. The electricity market is fully opened for all customers, and the prices are set in the market. All network companies are regulated with an income cap, covering all cost elements. Customers can file complaints regarding the tariffs to the regulator.

To ensure transparency of the terms and conditions of supply contracts, the network companies have an obligation to act in a neutral and transparent manner. Further on the network tariffs are regulated, in addition to the income cap mentioned above.

The Norwegian Parliament grants annually a certain amount of support to reduce tariffs for certain customers. The aim of the arrangement is to directly reduce the tariffs for customers in areas of Norway with high distribution costs. The arrangement do not influence on the incentives in the income regulation described above. The criteria for allocation is average cost per kWh, measured as total income cap in the network company divided on delivered energy measured in kWh. The scope of this arrangement is dependent on the annual budgets of the Ministry of Petroleum and Energy.

According to regulations managed by the Norwegian Competition Authority, all electricity suppliers are obligated to publish their prices on certain standard products/contracts offered to household customers at a Website hosted by the Norwegian Competition Authority for price comparison.

Further, all suppliers are obliged to state the price on the products/contracts they are offering in a certain way according to regulations managed by the consumer ombudsman.

Change of supplier has been free of charge for all customers since 1997.