Annual Report 2011
The Norwegian Energy Regulator

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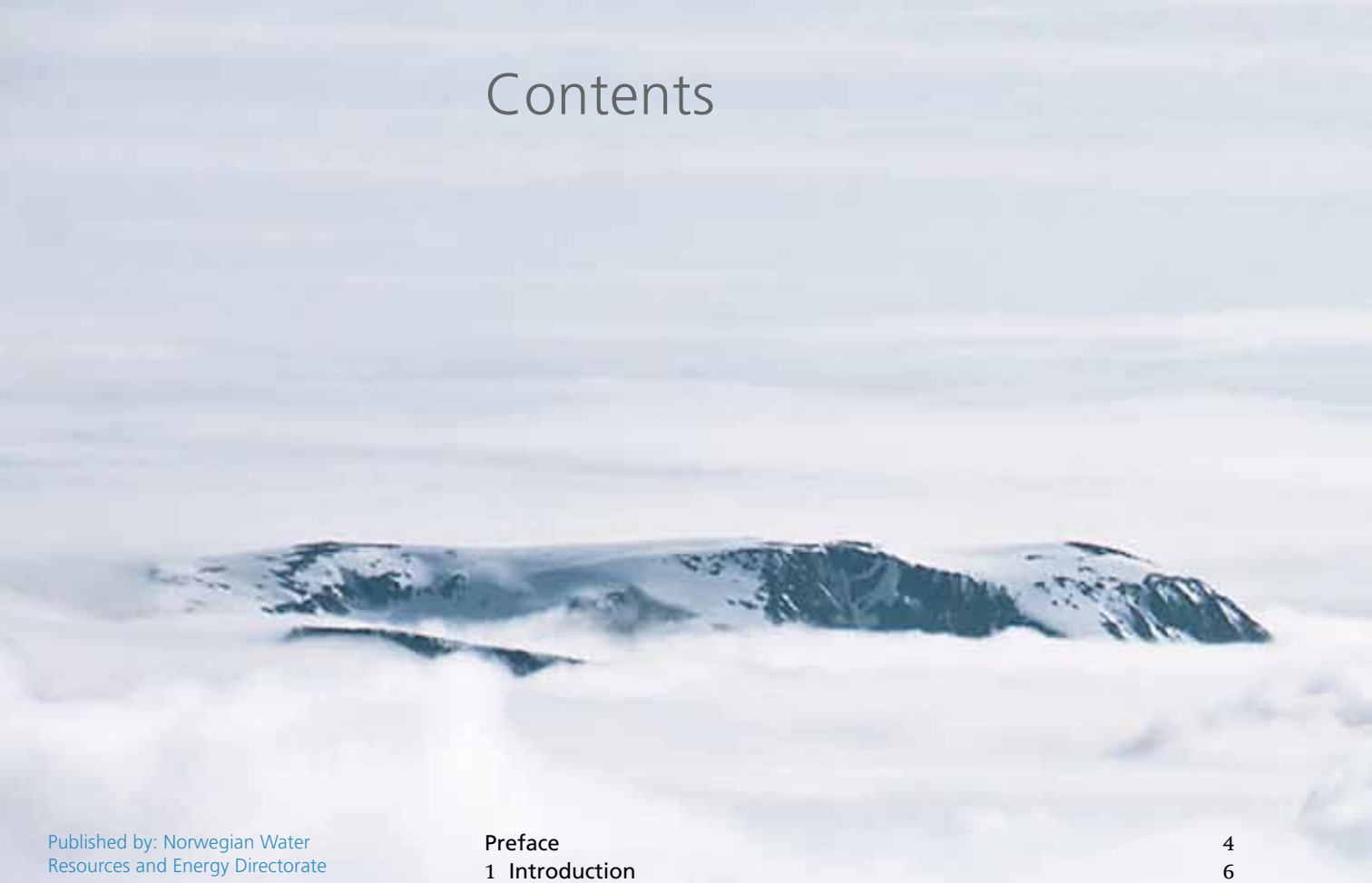

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Norwegian Water Resources and Energy Directorate

Middelthunsgate 29
P.O. Box 5091 Majorstua
N 0301 OSLO
NORWAY

Telephone: +47 22 95 95 95
Fax: +47 22 95 90 00
E-mail: nve@nve.no
Internet: www.nve.no

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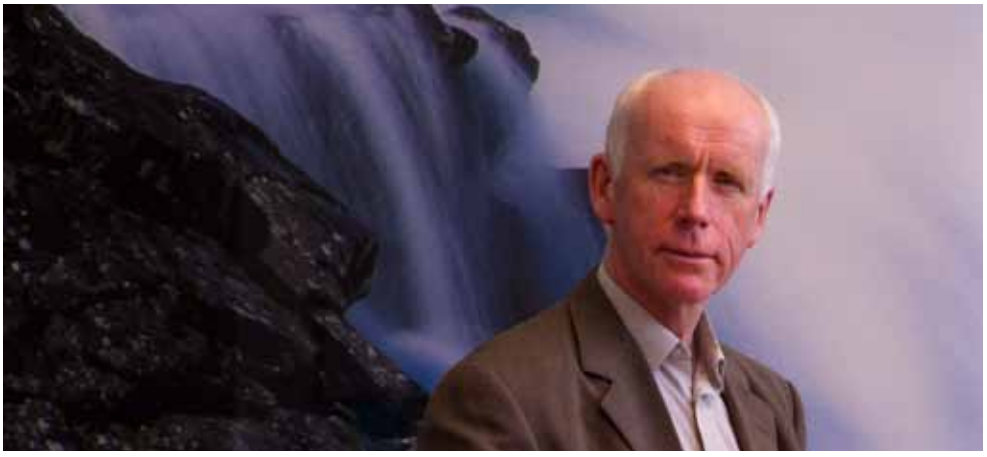
Preface



Plenty of weather, plenty of water. That is how NVE will remember 2011 in a nutshell. Hydropower is the dominant source of electricity in Norway. In 2011 we witnessed the largest amount of precipitation for 110 years. Due to massive rainfall, the power situation changed during the year, from scarcity of water and net import of electricity, to almost full reservoirs and net export.

This annual report from The Norwegian Energy Regulator provides an overview of the current regulation of the electricity and district heating markets in Norway, and explains relevant market developments. An overview of legislative amendments, research and development and international cooperation is also presented in the report.

I hope you will find this report useful.

Oslo, June 2012

Per Sanderud
Director General

1 Introduction

NVE regulates and monitors the Norwegian electricity and district heating markets. These activities are undertaken mainly by NVE's Energy and Regulation Department.

The main topic of this report is the Norwegian electricity sector, while the district heating sector receives less attention. The Norwegian district heating sector is small, and NVE's responsibilities within this sector are limited.

2 The Energy Act and NVE's regulatory responsibilities

The Norwegian Water Resources and Energy Directorate (NVE) was assigned the role of electricity regulator when the Norwegian Energy Act entered into force on 1 January 1991. The act authorises regulations and licences necessary to establish and regulate an efficient power market, with free choice of supplier and regulated access to the networks.

NVE is authorised to monitor compliance with, and take decisions according to the Energy Act and regulations laid down in accordance with the Act. NVE has also been delegated powers to issue regulations in order to secure an efficient electricity market: network regulation and tariffs, power system planning, quality of supply, metering and settlement, billing, supplier switching, neutrality and non-discrimination, system operation and the obligations and powers of the transmission system operator (Statnett SF).

According to the Energy Act a market place licence is necessary to organise and operate a marketplace (e.g. a power exchange) for trading physical electricity. At present Nord Pool Spot is the only entity that has been granted such a licence by NVE. The purpose of the marketplace is to promote efficient price formation in the power market by facilitating efficient, appropriate and trustworthy trading systems and trading rules.

Statnett SF is given the licence as the settlement responsible in the Norwegian power system, and organises the daily physical and financial settlement of imbalances in the Norwegian power system.

Statnett SF also holds the licences as the system operator in the Norwegian power system. The role and responsibilities of the system operator follows from the regulation on system operation, where the over all goals is to facilitate an efficient electricity market with a satisfactory security and quality of supply.

The Energy Act states that to fulfil Norway's agreed responsibilities towards another country, NVE can, without hindrance from legal confidentiality requirements, communicate confidential information to energy regulators in other EEA countries, including EU countries, when this information is necessary to promote the enforcement of regulations in the electricity market. Recipients of such information must declare that they will treat this information confidentially.

3 Regulation of the electricity market

3.1 Electricity market organisation and ownership

The Norwegian power sector consists of a large number of actors participating in business areas that may be categorised into five main groups:

- Generation: generator
- Transmission: transmission system operator (TSO), Statnett SF
- Distribution: distribution system operator (DSO)
- Supply: supplier
- Power exchange: Nord Pool Spot

The generator and supplier companies operate under free competitive conditions, while the transmission system operator and distribution companies operate as natural monopolies subject to regulation by NVE.

DSOs may be involved in both monopoly (distribution) and competitive business areas (generation and/or supply). Companies with a mix of monopoly and competitive activities are referred to as vertically integrated companies. This type of organisation is challenging for NVE in its work to achieve a well-functioning electricity market.

Everyone involved in generation, transmission/distribution, trading or supply must hold a licence issued by NVE.

Vertically integrated companies may be required to split its activities into unbundled entities. In cases where a vertically integrated company has more than 100,000 connected customers, the company is obliged to separate its monopoly and competitive activities – legal unbundling. According to the Energy Act vertically integrated licence holders are also required to keep different accounts for their monopoly and competitive operations – unbundling of accounts.

A total of 449 companies held a licence as of 31 December 2011. Of these a total of 159 companies were involved in grid operations, while 115 of these were vertically integrated companies engaged in grid operations, generation, trading and/or supply to end-users. 208 companies were engaged in generation.

Nord Pool Spot organises the Nordic marketplace for electricity for physical delivery, and offers both day-ahead market (Elspot) and intra-day market (Elbas) to its participants.

Nord Pool Spot is located in Norway, owned by the Nordic transmission system operators (TSOs) and regulated by NVE. The activities of Nord Pool Spot are governed by the Energy Act and additional licences with accompanying conditions.

Nord Pool Spot operates within the framework of both the market place licence issued by NVE, and the licence for cross border power exchange issued by the Ministry of Petroleum and Energy.

The Government owns more than 90 percent of the national grid through the national transmission company Statnett SF. The remaining 10 percent is in regional/local public ownership. Most distribution system operators are owned by county and municipal authorities.

3.1.1 Cooperation with other authorities

NVE and the Competition Authority have established bilateral cooperation in the electricity market. NVE is responsible for supervision of both the end-user market and the wholesale market.

The Norwegian Competition Authority has the formal responsibility for the market surveillance regarding competition issues in Norway. NVE assists the competition authority in the surveillance of the wholesale power market. This work is directed towards discovering misuse of market power. Due to the complex nature of the Norwegian power market, this surveillance is highly dependent on qualified power analyses

and interpretation of market events. NVE and the competition authority meet regularly to discuss events that at first sight go against the idea of free markets, and undergo in depth analyses if necessary.

There is also regular cooperation between NVE, the Competition Authority and the Norwegian Financial Supervisory Authority, as the Norwegian Financial Supervisory Authority supervises the derivatives markets at Nasdaq OMX. A high-level meeting between the Nordic energy regulators, competition authorities and financial supervisory is held at least once a year.

3.2 The wholesale market

3.2.1 Power exchange

Nord Pool Spot organises the Nordic marketplace for trading electricity for physical delivery, and offers both day-ahead (Elspot) and intra-day markets (Elbas) to its participants.

In the Elspot market, hourly power contracts for physical delivery in the next day's 24-hour period are traded daily. The price calculation is based on the balance between bids and offers from all market participants – finding the intersection point between the market's supply curve and demand curve. The Elspot concept is based on bids for the purchase and sale of hourly contracts using several different bidding products such as hourly bids, block bids, and flexible hourly bids that cover some or all of the 24 hours of the next day. The trade is based on implicit auctions.

Elbas is a continuous cross-border intra-day market that covers both the bidding zones within the Nordic countries, and interconnections with Germany and Estonia. (As of March 2012, Elbas also covers the interconnector between Norway and the Netherlands). Adjustments to trades made in the day-ahead market are made until one hour prior to delivery. All trades made on Elbas are implicit, utilising residual cross-border capacity after closure of the Elbasmarket.

As described, Nord Pool Spot is regulated by Norwegian law. However, there are also guidelines for the Nordic cooperation relating to NVE's exercise of authority over Nord Pool Spot. Meetings between the Nordic energy regulators are held on a regular basis to discuss relevant topics related to Nord Pool Spot. As of April 2011, a separate regulatory council to deal with topics related to Nord Pool Spot, has been set up. The council, at present comprising the Nordic and Estonian regulators, have meetings four times a year.

3.2.2 Power exchange with neighbouring countries

According to the Energy Act, all (physical) cross-border exchange of electricity requires a trading licence issued by the Ministry of Petroleum and Energy.

Both Nord Pool Spot and Statnett SF have been granted licences for the organisation of cross-border exchange in the Nordic area and on NorNed (the interconnection between Norway and the Netherlands). The overall aim of these licences for cross-border trade is efficient exchange, taking into account the security of supply.

According to the licences for cross-border exchange in the Nordic area, the physical trading between Norway and the other Nordic countries shall be based on implicit auctions in the day-ahead and intraday markets at the Nordic Power Exchange, Nord Pool Spot, and the Norwegian TSOs' participation in the Nordic System Operation Agreement. The licences for cross-border exchange on NorNed state that the trading arrangement shall be based on implicit auctions and decentralised market coupling between the involved power exchanges. The regulator shall supervise compliance with these licences, including Statnett SF's routines regarding the determination of trading capacity.

On 11 January 2011 interim tight volume coupling (ITVC) were introduced also on NorNed, completing the coupling of the Central-West Europe (CWE) with the Nordic market.

3.2.3 Transmission congestion management

The Norwegian system operator shall define Elspot areas in order to deal with major and long-term bottlenecks in the grid system. The system operator shall also define separate Elspot areas when a shortage of energy is expected in a limited geographical area. Other bottlenecks in the grid system should normally be dealt with by the balancing electricity market.

Any additional costs related to deviations from the normal sequences (see 3.2.5) in the balancing electricity market must be covered by the system operator. The system operator shall notify the defined Elspot areas in reasonable time before entering into force. From March 2010 Norway has been divided into five Elspot areas.

3.2.4 System responsibilities

Statnett SF has been granted a licence for system operation in Norway. This licence is valid from 1 January 2011 until 31 December 2012. NVE has the authority to approve and issue licences to system operators.

System responsibilities in Norway are regulated by separate regulations. The regulations shall facilitate an efficient electricity market and satisfactory quality of supply in the power system. The regulations shall ensure that system responsibilities are exercised in an efficient manner, having due regard to public and private interests.

The system operator shall:

a. provide frequency regulation and ensure continuous balance in the power system at all times
b. act in a neutral and non-discriminatory manner in relation to everyone covered by the regulations
c. develop market solutions which will help to ensure the efficient development and utilisation of the system
d. to the greatest possible extent make use of instruments which are based on market principles
e. coordinate and follow up the actions of licensees and end-users in order to achieve a satisfactory quality of supply and efficient utilisation of the power system
f. prepare and distribute information about power system-related matters that have a bearing on the power market, as well as matters of significance to the general quality of supply

The system operator has extended authority over other actors in the power system. The regulations apply to the system operator and anyone who wholly or partly owns or operates grids or power generation facilities, or organises marketplaces, as well as trading companies and end-users. NVE also carries out supervision and monitors that the system operator exercises its system responsibilities in a neutral and proper manner.

3.2.5 Statnett SF's settlement licence

The Norwegian TSO, Statnett SF, holds a licence from NVE to organise a marketplace for balancing power and conduct settlements in this market. The balancing power market is used to ensure balance between the supply and demand of electrical power, and to control the frequency of the system (50 Hz). The balancing market is available to both producers and large consumers, and the participants submit price and volume bids for

which they are willing to alter their production or consumption. When there is an imbalance in the system, Statnett SF can call on these bids to balance the system.

Statnett SF performs the settlement after the operating hour, and participants that have delivered either up or down regulation to Statnett SF, are remunerated.

Market actors that have deviated from their planned production or consumption are charged the imbalance price for the hour they were out of balance. In 2009, the balance settlement system was harmonised between the four Nordic countries.

Statnett SF switched from a one-price settlement (in which all actors were faced with the same settlement price in any hour) to a two-price settlement for producers and a one-price settlement for consumers.

The system was intended to encourage producers to submit more accurate production plans. The new system was part of a negotiated compromise between the four Nordic TSOs. Settlement of the balancing power market is considered a critical function in the whole power system. Reviewing the risks associated with settlement was thus a key part of the process when NVE renewed Statnett SF's settlement licence in 2009. Statnett SF's settlement licence was renewed on 25 June 2009 and is valid until 31 December 2012.

3.3 Retail market

The end-user market is characterised by a division of tasks between its participants, namely the suppliers, generators and distribution system operators (DSOs). As owners of the grid and administrators of the meter values, the DSOs shall have the role of market facilitators. This implies that they shall behave in a neutral and non-discriminatory way towards all suppliers.

Proactive supervision by NVE is required to detect and correct discriminatory behaviour among distribution companies. The distribution companies are most commonly vertically integrated with a supplier or have a supplier within the ownership group, and special attention has to be paid to these companies.

NVE conducts every year around 10 inspections of distribution companies. The inspections focuses on detecting breaches of the neutrality regulation, and consist of interviews with employees in positions exposed to contact with customers and revision of the internal neutrality-guidelines. Transparency plays an important part in our supervisory role. NVE therefore publishes the inspection reports on NVE's website.

In 2010 NVE started monitoring the neutrality of the websites of the distribution companies. As this is still a new inspection measure, an effort has been made to explain and educate the distribution companies on the main principles of non-discriminatory communication over the Internet. NVE published at the end of 2011 a revised guideline on the neutrality regulation, where neutrality of the websites was an important part.

In 2012 NVE is planning to implement a monitoring scheme based on a self-declaration (electronic form), where the distribution companies must declare if the fulfil the certain requirements of neutrality, based on the requirements explained in the newly published guidelines of neutrality.

3.3.1 Metering, settlement

The DSO is responsible for all meter values from every metering point within its grid area. Also when the handling of meters and metering data is outsourced to a third party, the distribution companies are responsible for ensuring the quality of all metering data for the different processes in the value chain. The distribution company shall document its routines to ensure quality.

From 1 July 2011 NVE put into force new regulations regarding smart meters and their functional requirements by amending the regulation governing metering, settlement and coordinated action in connection with electricity trading and invoicing of network services. DSO's are obliged to install a smart meter in every metering point within 2017.

The introduction of smart meters, other new technologies and a common Nordic end-user marked, will require renewal of the IT-infrastructure within all DSO's. NVE has given Statnett SF, which holds the settlement license, the task to investigate and develop a proposal for a common IT-solution for the Norwegian end-user market by 1 July 2012.

3.3.2 Retail market contracts

The suppliers in the Norwegian retail market offer a variety of contracts. The contracts can be divided into three groups: spot price, standard variable price and fixed price contracts.

Spot price contracts are based on daily prices from Nord Pool Spot plus a markup that consists of a variable and in some cases a fixed yearly fee.

For a standard variable contract, the supplier may freely choose the price and its duration given that any price change must be announced to its customers at least 14 days in advance.

Fixed price contracts are based on an agreement to deliver electricity at a fixed price for the duration of the contract.

According to regulations issued pursuant to the competition laws, a supplier that delivers electricity to a household customer shall report prices to the Norwegian Competition Authority. This applies for the three types of contracts mentioned above. The Norwegian Competition Authority maintains an updated comparison of prices on its website. Based on these prices NVE produces weekly and quarterly surveillance reports for the end-user market.

3.3.3 Customer switching procedure

A more customer-friendly switching procedure has been an overall goal since the Energy Act came into force in 1991.

Nordic Utilities Information Exchange (NUBIX) seeks to make the end-user market more efficient by enhancing the flow of information between the actors involved (customers, suppliers and DSOs) and tightening the deadlines for carrying out switches.

From 1 January 2012 customers can keep their existing electricity supplier when moving to a new home.

3.3.4 Supplier of last resort

In Norway the distribution network companies are obliged to supply all customers without an ordinary power supply contract. The number of customers without contract is rather small, approx. 4-5 percent of the total market. Several incentives and regulations are in place to keep this number as low as possible.

3.3.5 Nordic end-user market

The focus for the Nordic Energy Regulators (NordREG) cooperative work in 2011 has been the development of a target model aiming at implementing a common Nordic end-user market. This target model includes decisive issues regarding the design of the Nordic market, such as choice of a model for customer interface and the future model for invoicing electricity customers.

A commissioned consultant study recommended mandatory combined billing as the first choice, and a voluntary combined billing as the secondary choice. NordREG decided to recommend that mandatory combined billing should be the model for invoicing electricity customers in the future Nordic end-user market.

Regarding the future, model for customer interface in the Nordic market, NordREG is of the opinion that a supplier centric model is preferable. The intention of the supplier centric model is to make it easier for the customers, by, in most cases, providing them with the opportunity to be in direct contact with the supplier only. This will give the suppliers the main role in the market, while the DSOs will have the role of neutral market facilitators.

3.4 Market surveillance and information

NVE issues weekly reports that analyse the previous week's developments in the Norwegian and Nordic electricity markets. The report is distributed electronically every Wednesday between 1 and 2 pm, and published on NVEs website.

NVE also issues a quarterly report on developments in the Norwegian and Nordic electricity market. The reports analyse the previous quarter. The fourth quarter report also contains an analysis of the whole year.

Both the weekly and quarterly reports contain a detailed description of all relevant price development factors in the markets.

As a condition for its marketplace licence issued pursuant to the Energy Act, Nord Pool Spot has an obligation to establish appropriate procedures to monitor behaviour of the parties in the organised marketplace. Nord Pool Spot's Market Surveillance Unit performs this task. The purpose of monitoring the market is to ensure that the parties act in accordance with the objectives of the Energy Act and regulations issued pursuant to this Act. The Market Surveillance Unit monitors the trading activities in the markets at Nord Pool Spot, and conducts investigations of possible breaches of laws and regulations. The Market Surveillance Unit can obtain information from Statnett SF being the entity responsible for the system and for settlement of balancing power.

The Market Surveillance Unit may also request information about physical OTC trades. As a condition for the marketplace licence, Nord Pool Spot has an obligation to report to NVE any behaviour in the licensee's markets that has a restrictive effect on competition or otherwise contravenes current acts and regulations. NVE organises regular meetings with Nord Pool Spot and the Market Surveillance Unit in order to supervise compliance with the marketplace licence.

4 Transmission and distribution grids and network regulation

NVE combines economic and direct instruments in the regulation of power networks, in order to obtain efficient economic incentives and at the same time avoid unwanted external effects.

The power networks are subject to an array of rules in laws, regulations and conditions for licensing, which regulates the network companies' duties and rights. These regulations shall secure that:

- network companies invest and maintain the network,
- safety- and emergency preparedness concerns are ensured,
- the quality of supply is sustained adequately, that the security of supply is maintained in demanding situations,
- electrical constructions are adequately robust,
- investments with large environmental disadvantages are not carried out if the society's benefit from the investments are lower than social costs.

4.1 Economic regulation

The economic regulation of the network companies is based on objectives given in the Energy Act and regulations laid down in accordance with the act. An overall objective is to ensure a socioeconomic efficient power system through enabling an effective power market and an effective management, utilization and development of the electricity network.

The economic regulation of the network sector shall lay the basis for an efficient power market and controls on network operation as a natural monopoly, ensure that power is transmitted at the correct price and quality and that the network is utilized and developed safely and in a way that efficiently promotes the interests that are affected.

NVE determines annually revenue caps for each individual licensee. Over a period of time, the revenue shall cover the costs of operation and depreciation of the grid, at the same time giving a reasonable rate of return on invested capital given effective operation, utilization and development of the network.

NVE regulates the income of each of the 159 network companies in Norway through revenue caps (RC). The revenue caps are calculated according to the formula:

$$RC_t = 0.4C_t + 0.6_t$$

RC_t is the revenue cap in year t. C_t is the cost base for each network company, based on costs from year t-2.

C_t^* is the cost norm for the company, which is the result of a benchmarking analysis of the companies, also based on data from year t-2. NVE use Data Envelopment Analysis (DEA) to benchmark the companies' costs, and Ordinary Least Square (OLS) regression models to correct the DEA results for environmental factors.

NVE defines a WACC (weighted average cost of capital) to calculate the capital cost of each company.

Table 4-1
Comparing main figures in the revenue cap; DSOs and TSO Statnett (*Figures for TSO are estimates)

(Costs in 1000 NOK)	2010		2011	
	DSOs	TSO	DSOs	TSO*
Revenue cap	17 699 071	4 239 384	15 349 473	3 905 250

As is shown in table 4-1, there was a reduction in the total revenue cap from 2010 to 2011. This was mainly due to a large addition in the revenue cap in 2010 caused by a substantial deviation between expected and actual costs in 2008. It is a property of the Norwegian model that the revenue caps are adjusted every year based on the deviation between the network industry's total O&M costs and the total O&M costs included in the revenue caps two years earlier.

Investments in regional- and distribution grid have been increasing over the last years, as shown in figure 4-1, however less rapidly over the last couple of years. Figure 4-2 shows the investments for the TSO. The big leap in investments for Statnett from 2007 to 2008 is mainly due to the new DC subsea interconnector between Norway and the Netherlands (NorNed).

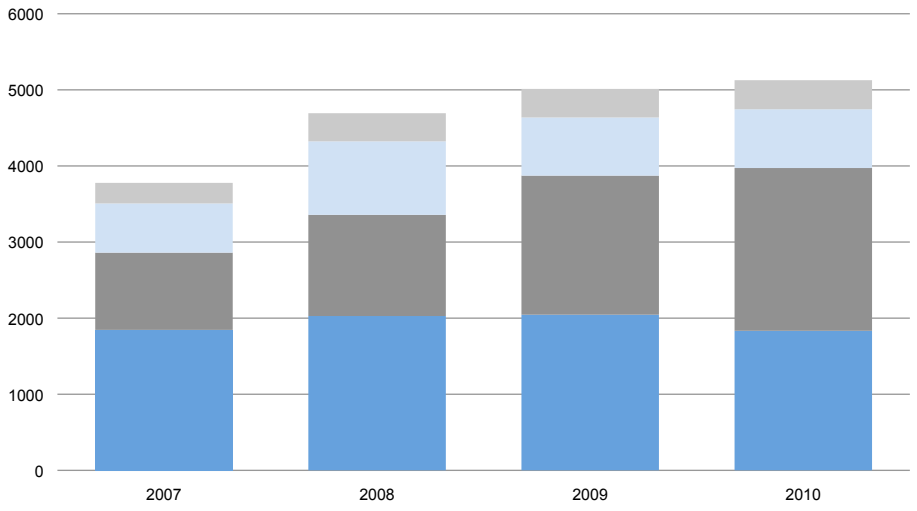


Figure 4-1
Development in investments in fixed assets, excl. Statnett, in mill. NOK

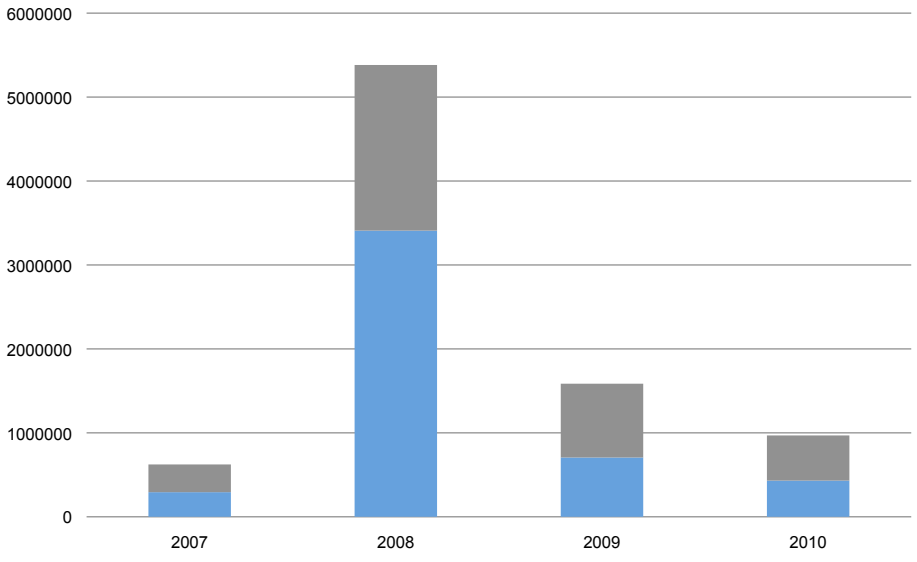
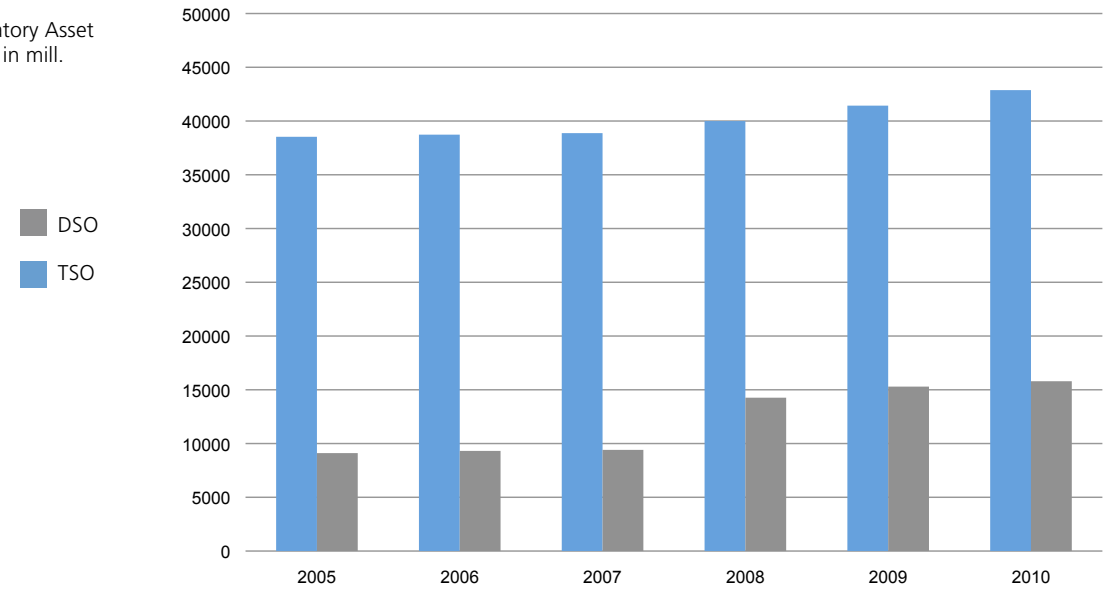


Figure 4-2
Development in investments in fixed assets for Statnett in 1000 NOK

Figure 4-3
Development in Regulatory Asset Base (RAB) 2005-2010 in mill. NOK



4.1.1 Development of the economic regulation in 2011

Although the economic regulation should be as stable and predictable as possible, NVE regards it as very important that the regulation is sufficient dynamic to catch up with important changes in the sector.

During 2011 NVE has, together with representatives from the sector, worked on improvements of the models used for determining the companies revenue caps. Most of this work will conclude in 2012 and be included in the revenue caps for 2013, but smaller adjustments were also made for 2012.

The Norwegian revenue cap model ensures that the network industry as a whole will recover their full costs, including depreciation and return on assets. However, at utility level this is not the case. The network utilities with the lowest costs will recover more than their actual costs, and hence earn a higher return on investments than the utilities with higher costs. This is done to incentivize efficiency. To encourage investments, the industry has requested changes in the model to allocate more revenues to those who have newer assets from those with the elder assets. Minor changes were implemented to meet this request to some extent.

The network companies have to replace all meters that don't fulfill the requirements in the new legislation on smart metering, before the end of 2016. As a consequence, some companies have to replace meters that are not fully depreciated. The utilities with the newest meters will suffer an economic loss due to the economic regulation, and those with the oldest meters will benefit. NVE decided in 2011 to compensate utilities with the greatest losses by reallocating revenues from those with the oldest meters to those with the newest.

NVE has decided to evaluate the WACC model, which has been the basis for the rate of return in the regulation since 2007. The decision is based on analyses of the network companies' actual lending costs and the fact that the terms for the parameters have changed dramatically the last years, mainly due to the financial crisis. The work will be concluded in 2012.

4.2 Direct regulations

The network companies are subject to many direct regulations defining duties and rights. NVE expects that the network companies follow the direct regulations. The compliance of the direct regulations is controlled through a comprehensive monitoring activity each year.

4.2.1 Obligation to connect

According to the Energy Act all licences for electrical installations are obligated to connect new generation of electrical power and new installations for customers. If necessary, the obligation to connect implies that network companies must carry out reinforcement of the network. If new connections or upgrade of existing connections are not defendable for secure operation of the network, customers must wait until necessary reinforcements are made. Network companies are obliged to carry out necessary reinforcements as soon as possible.

4.2.2 Quality of supply in Norway

NVE put into force a new regulation on quality of supply from 1 January 2005. Some modifications entered into force in 2006 and some in 2007. The purpose of the regulations on quality of supply is to help ensure a satisfactory quality of supply in the Norwegian power system and a socially rational operation, expansion and development of the power system. This includes taking into account the public and private interests affected.

When developing the Norwegian regulations, NVE noted the importance of compatibility between different regulations and standards. Hence, the Norwegian requirements take into account both emission and immunity levels given in international standards. International standards were, however, found to be unsatisfactory as references for limits, although for measurement methods, relevant standards from CENELEC and IEC are referred to. The regulations on quality of supply define requirements for (in short):

- A minimum acceptable level of voltage disturbances at the point of connection
- Continuous monitoring of voltage quality
- Registration and reporting of short and long interruptions
- Information to customers about historical power quality levels and the future power quality levels that can be expected
- Time limits for handling and resolving customers' complaints relating to power quality
- Restoration of supply and rectification of violated limits without undue delay.

The regulations apply to "those who wholly or partially own, operate or use electrical installations or electrical equipment that are connected within the Norwegian power system, and those who pursuant to the Energy Act are the designated transmission system operators."

4.2.3 Voltage quality

As far as voltage quality is concerned, minimum requirements have been introduced for power frequency, supply voltage variations, voltage swells (exemptions for some causes), voltage dips (exemptions for some causes), rapid voltage changes (exemptions for some causes), flicker, voltage imbalance, and harmonics. The regulations cover everyone connected to the power system, i.e. network companies, end-users and power producers.

Due to the nature of electricity, it was considered important to have requirements

for all parties connected to the power system. The regulations further point out that power quality shall form part of the network contract between the network companies and their customers. Such a contract can be an important instrument for limiting disturbances generated by customers, so that the voltage quality requirements at all supply terminals can be managed. If a customer's plant generates disturbances so that the limits set for voltage quality are exceeded at the point of connection for other customers, then the disturbing customer is obliged to rectify the problem without undue delay. Further, if a customer experiences incidents in its own plant that are likely to generate voltage quality deviations above the limits set for each point of connection, the customer is obliged without undue delay to inform the network company to which the customer is connected. However, in an individual case it might be difficult to decide whether the disturbances from the customer are too high or whether the short circuit power of the power system is too low. If the network company and the customer do not agree on who is responsible for rectifying the situation, the case can be brought before the regulator (NVE).

Every network company is obliged to continuously carry out monitoring on characteristic areas of their MV, HV and EHV network. The companies must decide by themselves how many instruments are necessary in order to create trustworthy statistics. Each network company must have at least one instrument installed in each different characteristic area. The regulations specify three voltage quality parameters that the companies must measure continuously: voltage dips, swells and rapid voltage changes, because these have a stochastic behaviour. Voltage dips and swells can lead to break down, trip or malfunction of electrical equipment, while rapid voltage changes mainly lead to fluctuations in the illumination level.

4.2.4 Continuity indicators

A standardised system for registering and reporting faults and interruptions is used in Norway. The system is called FASIT (Fault and Interruption Statistics in the Total network). It includes both long interruptions (> 3 minutes) and short interruptions (≤ 3 minutes). It takes into account information about the network topology (NIS), customer information system (CIS), circuit breaker operations (e.g. from SCADA), temperature data and load measurements or standardised load profiles. FASIT applies to all network companies with grid customers. The network companies know exactly how many customers (end-users) are supplied from a reporting point (which is either a distribution transformer or one end-user connected above 1 kV). All the network companies are obliged to report specific interruption data to NVE once a year. The data are distributed for all high voltage levels (above 1 kV), for notified and not-notified interruptions, and for each end-user group (e.g. households, industry, farming, etc.) A total of 36 end-user groups are specified.

Regarding notified and not notified interruptions: In the event of planned work involving interruptions or reduced capacity to supply end-users, network companies shall inform the affected network customers about their time schedule a reasonable amount of time prior to the start of the work.

4.2.5 Power system planning

NVE has appointed the responsibility for power system planning to a licensee in a given planning area. 18 planning areas have been established, of which 17 are regional areas which comprise planning in the regional distribution grids (33 kV – 132 kV), and one for planning the national transmission grid (132 kV-420 kV). Within each area, one of the DSOs is designated as responsible for coordinating the planning process among the DSOs in the area. Generally the areas follow the county borders, but there are some few exceptions. In the national transmission grid the TSO (Statnett SF) is responsible for

the planning process and for issuing the national grid study. Coordinated power system planning in the grid system shall promote the socially efficient development of energy systems and provide a platform for processing licence applications.

4.2.6 Power system study

Every year both regional planning areas and the national planning area have to develop and/or update a regional grid development study. The yearly updated power system studies are submitted to NVE. The study period for the grid development is a minimum of 10 years.

The power system study must describe today's grid, future transmission conditions together with anticipated measures and investments. The study includes presentations of statistics with characteristics of generation, transmission and usage of electrical energy, and also includes conditions that are of importance and relevance for the development of the power system in the designated area. Simplified socio-economic(al) analysis must be presented for all grid investments that require environmental impact assessment (EIA). When applying for a licence to build or reinvest in the regional distribution grids or the national transmission grids, the applied solution must be part of the latest grid study submitted to the regulator.

The main goal of for power system studies is to contribute to a socially rational development of the national and regional grids. The power system studies will continue to be important in NVE's handling of applications to obtain licences for the construction and operation of generation or network installations.

4.2.7 Norway's special regulations for highly critical power situations

Regulations relating to power system operation regarding handling of extreme situations came into force on 1 January 2005. These regulations aim to address extreme situations and are not relevant for normal operation.

These regulations impose an extended responsibility on the Norwegian TSO (Statnett SF) to continuously investigate and develop the measures necessary to ensure there is continuous balance at all times and to ensure the energy balance during the winter season. Statnett SF shall inform NVE of its various findings. NVE shall approve, with terms, the different measures before they are put into force. Permanent and operational costs for the different measures shall be handled within Statnett SF's revenue cap. Statnett SF has to develop the means within the following set of premises:

- Not to entirely eliminate the probability of electricity rationing, but to reduce the risk
- Must be effective for handling extreme situations, and yet not affect the electricity market or investment decisions regarding production or transmission grid
- Not to change or affect the TSO's (Statnett SF) neutral and independent position
- in the power market.
- Contribute to the socio-economic management of extreme situations and not
- reduce the efficiency of the physical power market
- Take into consideration the already existing flexibility in production, transmission
- and consumption.

The different measures approved by NVE are:

- Mobile gas turbines which can be used for production back-up.
- Energy options, contract with different consumers to reduce their consumption.

The measures can only be activated following a decision by NVE. The measures will only be accepted in situations where rationing is considered likely. Currently Statnett SF has installed two mobile gas power plants, each with a capacity of 150 MW. The volume of energy options contracts Statnett signs with consumers for the upcoming winter varies from year to year.

4.2.8 Security and emergency

The preparedness provisions of the Energy Act were last amended in January 2012. During 2012 NVE will amend the requirements of the Contingency Regulations concerning preventive security, contingency planning and crisis management.

Since 2005, NVE has intensified supervision of all the most important energy companies working with risk assessments, safety and preparedness in relation to extraordinary events. This includes both events caused by forces of nature, technical failure and deliberate vandalism. At the same time, NVE has reinforced efforts to guide the energy industry in preventive security and contingency planning. NVE annually conducts several major regional contingency exercises to improve coordinated repair in case of breakdowns in the supply of energy and other critical infrastructure (e.g. telecom, road-sector/transportation). NVE has an active R & D program within areas that can influence the energy sector (e.g. climate change and –adaptation).

NVE actively contributed to establishing improved Nordic cooperation on emergency repairs. NVE has begun work to facilitate adequate follow-up of the EU Directive on the protection of cross-border infrastructure.

4.3 Network tariffs

The tariff requirements and methodology are laid down in NVE's regulations. In the regulations, "tariffs" is used as the common term for remuneration for connection and use of network installations. All tariffs are based on the costs referring to the consumer's point of connection. An agreement with the network company at the point of connection shall provide access to the entire network system and the power market.

All network companies are responsible for framing tariffs within their income cap pursuant to the regulation on tariff structure. Since 2010, all houses, apartments and vacation homes shall be metered and settled individually.

According to the regulation on tariff structure, tariffs shall consist of a usage- dependent energy component set on the basis of marginal network losses, and a fixed annual amount per customer to cover customer-specific costs and costs that are not covered by the usage-dependent tariff components.

4.3.1 Tariffs for input of power

Input power tariffs consist of an energy component that varies with the customer's current input, and a fixed amount. The tariff is independent of whom the producer sells his power to.

The energy component depends on the customer's current input of energy. The energy component is calculated individually for each separate input point and is determined on the basis of marginal loss costs in the whole network system. In points with both outtake and input, loss rates shall be symmetrical around zero. In areas with a production surplus, input has a high loss rate and outtake a negative loss rate, and vice-versa.

The national grid input tariff shall be normative for the fixed component by power input into regional and distribution networks. The national grid input tariff for 2011 was NOK 0.008/kWh. Settled production volume shall be based on the power plant's median annual output. For power plants with installed capacity below 1 MW, settled volume shall as a maximum be 30 per cent of installed load capacity multiplied by 5,000 hours.

Until 2011, the Norwegian transmission system operator (Statnett SF) had a special reduced tariff of NOK 0.001/kWh for new production with a favourable location for the network. Producers in selected network areas were offered such a tariff in agreement

with Statnett SF. This tariff is no longer available to new customers from 2011. Customers who have signed an agreement before 2011 can keep the reduced tariff in 15 years.

4.3.2 Tariffs for consumption and out-take of power

The Norwegian transmission system operator (Statnett SF) levies a locational charge for marginal losses to all users of the system, where the marginal loss factors are recalculated weekly in order to reflect changing of system conditions.

Consumption in the transmission grid is charged with a fixed component based on each customer's average total consumption during peak load hour at each individual connection point for the five previous years. In this way the variation in the customer's costs, as a result of fluctuations in the peak load hour from one year to the next, are reduced.

Consumers in the distribution network are charged a fixed component that covers customer-specific costs and a share of the other fixed costs in the network. The network company shall prepare separate tariffs for high-voltage and low-voltage.

The energy component for customers without maximum demand metering in the distribution network may, in addition to network losses, also cover a share of the other fixed costs in the network.

4.3.3 Tariffs for end-users with energy surplus

Since March 2010 NVE gives a general dispensation to simplify the processes related to end-use customers who generate electricity for their own consumption, and in some hours have a surplus. The dispensation simplifies the process of selling surplus electricity back to the grid. NVE have defined "surplus plus customers" as:

End-users of electricity that have an annual generation that normally does not exceed their consumption, but have during certain hours a surplus of electricity that can be fed back to the grid. Generation which requires licensing or producers that supply electricity to other end-users are not covered by the dispensation.

Surplus customers may be passive houses with solar panels on the roof, or other installations that generate a limited amount of electricity. The dispensation implies that the local network company can purchase the surplus electricity and a simplified input tariff. It is not mandatory to offer the suggested arrangement for handling smart-customers to the grid company.

4.3.4 Connection charge

Network companies may require a connection charge to cover the costs of connecting new customers to the network or cost of reinforcing the network for existing customers.

The objective of the connection charge is to make the customer responsible for the costs related to a new connection or an upgrade of the customer's existing network connection. Costs not covered by the responsible customer, but by the network company will increase the network company's allowed income, and hence, be dispersed to all customers through increased tariffs.

5 The power situation and electricity market in 2011

Facts about the Norwegian power system:
- 95 per cent hydropower generation
- 4 per cent combined cycle gas turbine generation
- 1 per cent wind power

Annual production for years with average inflow:
- 137 TWh (estimate)

Installed capacity at the end of 2011:
- 31 714 MW
- Somewhat more than 80 per cent of the installed capacity is available in the winter season

Reservoir capacity for the Norwegian hydro power system:
- 84.3 TWh
- Approximately 50 per cent of the annual inflow results from snow melting in May, June and July

Norway has import/export transmission connections to:
- Denmark (1000/1000 MW)
- Finland (80/120 MW)
- Sweden (3695/3545 MW)
- Netherlands (700/700 MW)
- Russia (30/0 MW)

Gross annual electricity consumption in a year with normal temperature conditions:
- 125-130 TWh

Electricity consumption by consumer groups(estimates):
- Households (35 TWh)
- Energy intensive industries incl. pulp and paper industry (33 TWh)
- Service sector (25 TWh)
- Other (20 TWh)

5.1 Hydrology and reservoir development

5.1.1 Inflow to hydropower reservoirs

The inflow to the Norwegian hydropower reservoirs was 149.2 TWh in 2011, which is 26.7 TWh more than in a normal year. In January and February the inflow was a little less than normal, whereas March was wetter than normal. An early spring thaw caused inflow well above normal in April. In early June the inflow peaked at 9.8 TWh in one week. Thereafter high precipitation gave high inflow also in May and June. The wet weather continued throughout autumn and winter. In week 52 the inflow was measured to 2.8 TWh – the highest inflow ever registered in week 52.

5.1.2 Temperature

Temperatures were calculated to on average 1.8 degrees Celsius above normal throughout Norway in 2011. This makes 2011 one of the warmest years in 20 years. January and February were the only months when average temperatures were below normal.

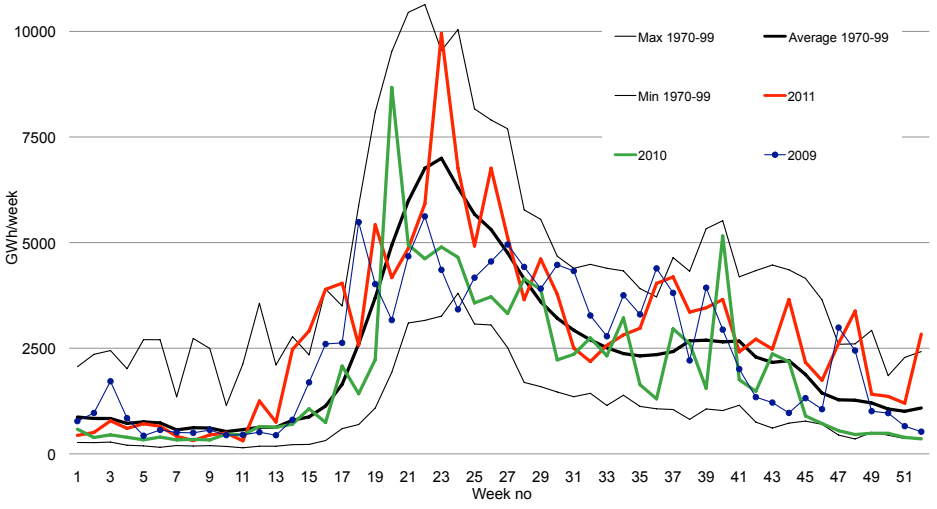


Figure 5-1
Inflow to the Norwegian hydropower system in 2009, 2010 and 2011. GWh/week. Source: NVE

5.1.3 Hydropower reservoir development

Reservoir levels saw new extremes both in the low and high directions in 2011. At the beginning of the year the content of the Norwegian hydropower reservoirs were at 45.3 percent of max capacity, about 25.9 percentage points less than in a normal year and the lowest registered reservoir level at the beginning of a year in the reference period (1982-2011). At the end of 2011 the situation was the opposite with a reservoir filling of 80.3 percent – the highest reservoir level registered at the end of the year in the reference period, and 9.1 percentage points above normal.

The record high reservoir level at the end of the year was a result of low production during the first months of the year and a rapid increase in filling during the early spring thaw. Wet weather during the rest of the year contributed further to the high reservoir level. In week 13 reservoir levels was at 18.1 percent, the lowest value for 2011, and 19.9 percentage points below the normal value for the week. The highest reservoir level of the year was reached in week 44 with 88.0 percent filling, about 1.8 percentage points above normal.

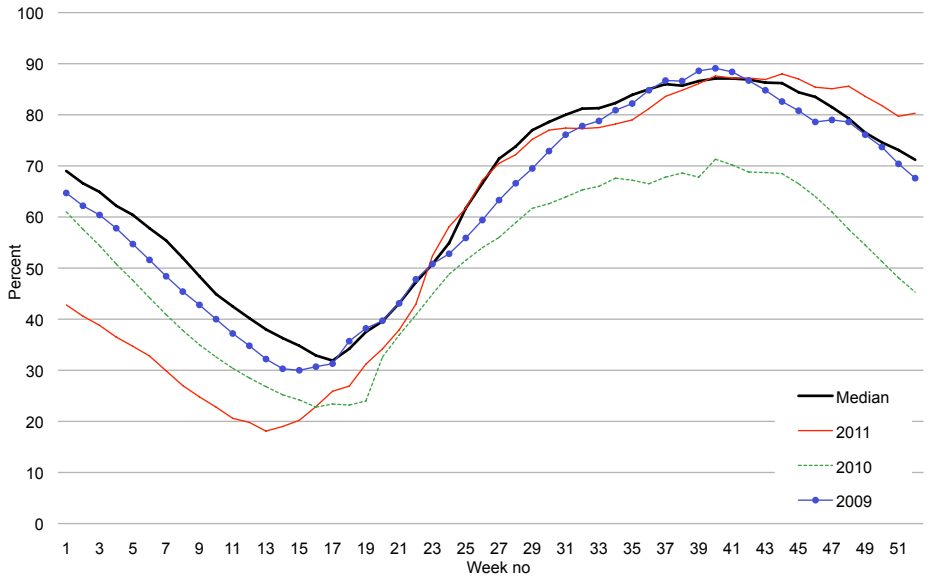


Figure 5-2
Reservoir filling for Norwegian hydropower reservoirs (100 per cent = 84.3 TWh) in 2009, 2010 and 2011. Percent. Source: NVE

5.2 New generation capacity

Norway's mean annual hydropower generation increased by 0.6 TWh in 2011, according to preliminary figures. Mean annual hydro generation was estimated at 125.7 TWh by the start of 2012. The table below shows the generation capacity and capacity change by county.

Table 5-1
Table 5 1 Generation capacity and change in capacity by county. Source: NVE

County	Status end of 2010		Additions/ corrections 2011*		End of 2011	
	Total capacity [MW]	Mean year generation [GWh]	Total capacity [MW]	Mean year generation [GWh]	Total capacity [MW]	Mean year generation [GWh]
Østfold	814.2	4294.5	51.3	136.1	865.5	4430.6
Akershus	183.4	926.3	0.1	0.4	183.5	926.7
Oslo	5.0	22.4			5.0	22.4
Hedmark	539.7	2426.5	20.0	49.6	559.7	2476.1
Oppland	1534.8	5921.8			1534.8	5921.8
Buskerud	1937.9	8532.1	5.5	15.9	1943.4	8548.0
Vestfold	4.2	16.3			4.2	16.3
Telemark	2585.5	11383.0	2.6	8.5	2588.1	11391.5
Aust-Agder	1180.1	4473.9	6.9	17.1	1187.0	4491.0
Vest-Agder	2085.1	9467.0			2085.1	9467.0
Rogaland	3602.5	12512.6	2.2	45.5	3604.7	12558.1
Hordaland	4171.6	16499.6	16.8	50.0	4188.4	16549.6
Sogn og Fjordane	3931.7	14716.8	24.5	81.3	3956.2	14798.1
Møre og Romsdal	1398.4	6599.3	22.3	81.1	1420.7	6680.4
Sør-Trøndelag	1069.9	4554.5	2.1	7.2	1072.0	4561.7
Nord-Trøndelag	748.0	3271.6	2.1	6.9	750.1	3278.5
Nordland	3285.4	15254.3	22.5	71.3	3307.9	15325.6
Troms	565.1	2710.6			565.1	2710.6
Finnmark	318.7	1537.7			318.7	1537.7
Total	**29961.1**	**125120.6**	**178.9**	**570.9**	**30140.0**	**125691.5**

* Preliminary figures

85.1 MW of new wind power generation capacity was installed during 2011, while 8.6 MW was taken out of production. Total wind power capacity by the start of 2012 was 511. 5 MW. The table below shows wind power by county (MW).

County	Status end of 2010	Changes 2011	End of 2011
Vest-Agder	3.8		3.8
Rogaland	3.5	59.8	63.3
Sogn og Fjordane	22.7		22.7
Møre og Romsdal	154.2		154.2
Sør-Trøndelag	124.2		124.2
Nord-Trøndelag	38.4	-0.1	38.3
Nordland	7.7	25.3	33.0
Troms	1.5	-1.5	0.0
Finnmark	79.1	-7	72.1
Total	**435.0**	**76.5**	**511.5**

Table 5-2
Wind power in Norway by county. Source: NVE

6.3 MW new thermal generation capacity was established in Norway during 2011. Thermal power generation capacity totalling 1062.5 MW has been installed. In addition, Norway has two reserve gas power turbines in mid-Norway with a total capacity of 300 MW. The table below shows the thermal power by county (MW).

County	Status end of 2010	Additions 2011	Status end of 2011
Østfold	33.5		33.5
Oslo	10.0		10.0
Hedmark	8.3	6.3	14.6
Buskerud	65.1		65.1
Vest-Agder	25.5		25.5
Rogaland	468.8		468.8
Hordaland	164.5		164.5
Møre og Romsdal	33.3		33.3
Sør-Trøndelag	22.2		22.2
Nord-Trøndelag	10.0		10.0
Finnmark	215.0		215.0
Total	**1056.2**	**6.3**	**1062.5**

Table 5-3
Thermal power in Norway by county. Source: NVE

By the start of 2012, 1 TWh new hydropower capacity was under construction. In total, around 3 TWh hydropower projects have licences but are still not on stream. In 2011, 0.7 TWh new hydropower projects were granted licence. In some cases licences are issued, but construction is not allowed before there is sufficient grid capacity.

Still it is great interest of constructing new hydropower in Norway. NVE currently has, within the licensing system, a total of 11 TWh estimated yearly generation. Of these, 6 TWh is applications for small hydropower and 5 TWh larger hydropower.

5.3 Electricity generation

In 2011, total electricity production in Norway amounted to 128.1 TWh. This is a 3.0 percent increase from the previous year. Hydropower generated 122.1 TWh and thermal power 4.8 TWh. Norwegian windmills produced 1.3 TWh in 2011, with an operational time of 2737 hours (capacity factor 31 per cent).

The Norwegian power generation varies with the inflow conditions. The reservoir capacity in the Norwegian hydro power system is 84.3 TWh. Approximately 50 per cent of the annual water inflow results from the snow melting in May, June and July. Low snow volumes in the winter 2005/2006 and a dry summer and autumn in 2006 resulted in low generation that year. In 2008, a lot of rain and high inflow led to high production.

Due to very little snow in the winter 2009/10, the inflow in 2010 was very low. Together with cold weather and a high power production in parts of 2010, did this cause low levels in the reservoirs at the start of 2011. This again led to high import and low power production in the first quarter of 2011. However, a record early spring and a wet weather made the power production rise significantly in the summer and autumn. This weather period lasted throughout most of the year, and made the power production rise gradually, as shown in figure 5-3.

5.4 Electricity consumption

The Norwegian electricity consumption amounted to 125.1 TWh in 2011. This is a decrease of 6.9 TWh, or 5.2 percent, from 2010. The net consumption was 112 TWh in 2011. Energy intensive industry and households accounted for 35 and 37 TWh (estimated), while the service sector consumed 23 TWh (estimated). Small manufacturing industries had a consumption of 12 TWh (estimated), while oil and gas activities accounted for 6 TWh.

From April 2006, Norway experienced reduced consumption for 12 months. From May 2007 consumption again rose until the summer of 2008. Since then consumption have had a downward trend. The main reason for this is the financial crisis and the slowdown of economic growth. In 2010, Norway again experienced a rise in consumption due to cold weather and increasing industry consumption, resulting in record high consumption level. The weather in 2011 was milder and the consumption decreased by almost 10 percent from 2010. Most of the reduction found place in the household sector.

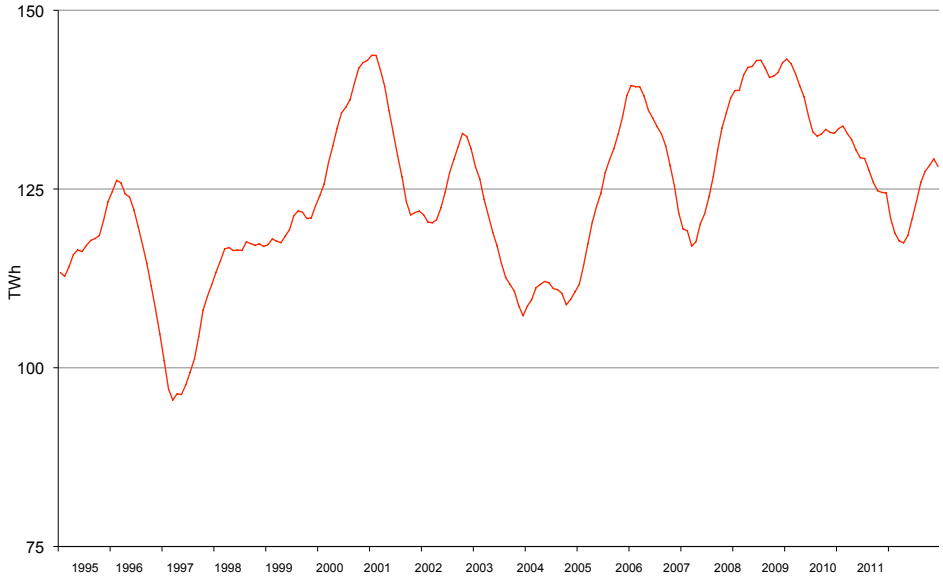


Figure 5-3
Electricity generation in Norway, aggregate for the last 12 months, 1995-2011. TWh. Source: NVE

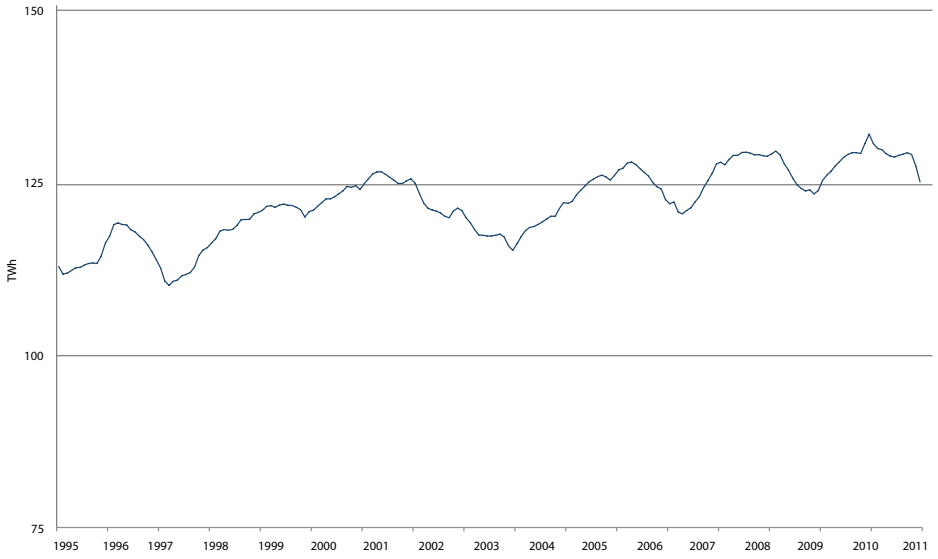


Figure 5-4
Electricity consumption in Norway, aggregate for the last 12 months, 1995 - 2011. TWh. Source: NVE

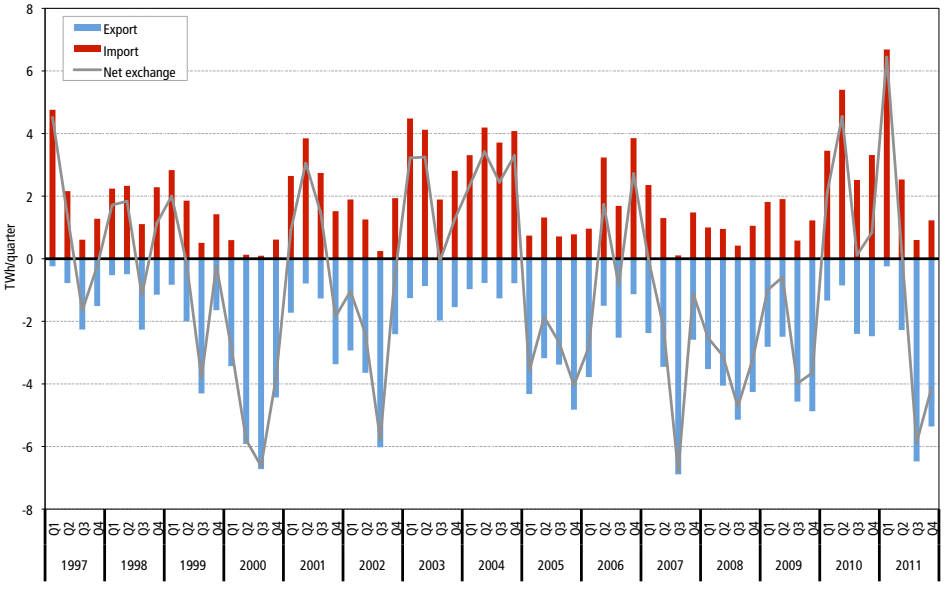
5.5 Cross-border electricity exchange

Norway had a net export of 3.0 TWh in 2011. Behind the net import figure we find a much larger gross trade as Norway often exports during the day and has import during nights and weekends.

Export to Sweden: 7.1 TWh
Export to Denmark: 3.6 TWh
Export to the Netherlands: 3.5 TWh
Export to Finland 0.1 TWh

Import from Sweden: 6.9 TWh
Import from Denmark: 2.4 TWh
Import from the Netherlands: 1.5 TWh
Import from Finland: 0.1 TWh

Figure 5-5
Norway's electricity exchange, 1997-2011. TWh. Source: Nord Pool Spot



5.6 Electricity prices

5.6.1 Spot prices

At the beginning of 2011 the Nordic system price was slightly above 600 NOK/MWh. This reflected a significant hydrological deficit in the Nordic reservoirs, which was a result of dry and cold weather as well as low nuclear power production in 2010. The weather turned milder at the beginning of 2011, and the prices started to fall. The weather was also wetter than normal most of the year. As the hydrological balance strengthened throughout the year continued the tendency with falling prices.

From the first to the second quarter the average system price was reduced from 514 to 402 NOK/MWh. As shown in figure 5-1 the inflow to the Norwegian reservoirs was high during most of the autumn, and at this point was the ability to save water for later use reduced. This pushed the system price to about 100-200 NOK/MWh for a period, below the forward prices. Later in the autumn the consumption was higher, and the spot prices increased to a level closer to the forward prices. The average system price was approximately 270-275 NOK/MWh in the last two quarters.

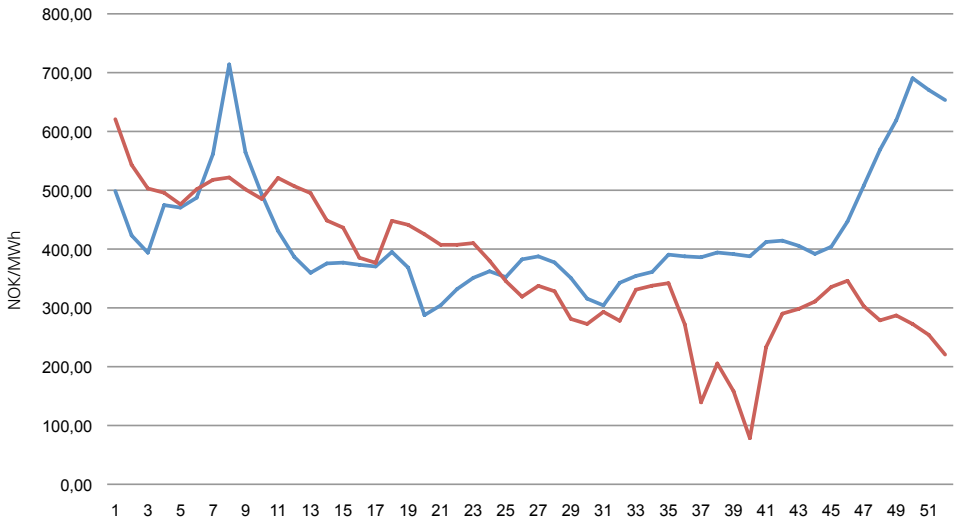


Figure 5-6
Weekly average spot prices (system price) NOK/MWh. Source: Nord Pool Spot

5.6.2 Forward prices

2011 started with a high hydrological deficit, and this is reflected in relatively high forward prices in the first part of the year, as shown in figure 5-7. An early spring and wet summer and autumn made the forward prices for the coming quarter, the so-called front quarter, fell from 450 NOK/MWh on 13 May to 340 NOK/MWh on 30 June. The price on the front quarter contract stayed at around 400 NOK/MWh during most of July and August, but fell during September and was 324 NOK/MWh at the end of the month.

During October the front quarter forward contract rose again, and was 392 MOK/MWh on 7 November. However, as a result of continued high precipitation and rising reservoir levels, did the contract again enter a falling trend that lasted throughout the year. On 30 December was the contract traded for 283 NOK/MWh.

Figure 5-7
Front quarter forward contract prices NOK/MWh. Source: Nord Pool Spot

5.7 End user market developments

Figure 5-8 shows the distribution of households by various end-user contracts. An increasing fraction of households are choosing spot-based contracts on which the customer pays the average monthly spot price in the actual region plus a margin. On average, the margin is estimated at NOK 0.019/kWh. The two most common forms of contracts, spot-based contracts and short term hedging-based contracts (called variable price contract), have remained stable in 2011.

Figure 5-8
Household electricity supply contracts 2000-2011. Source: Statistics Norway

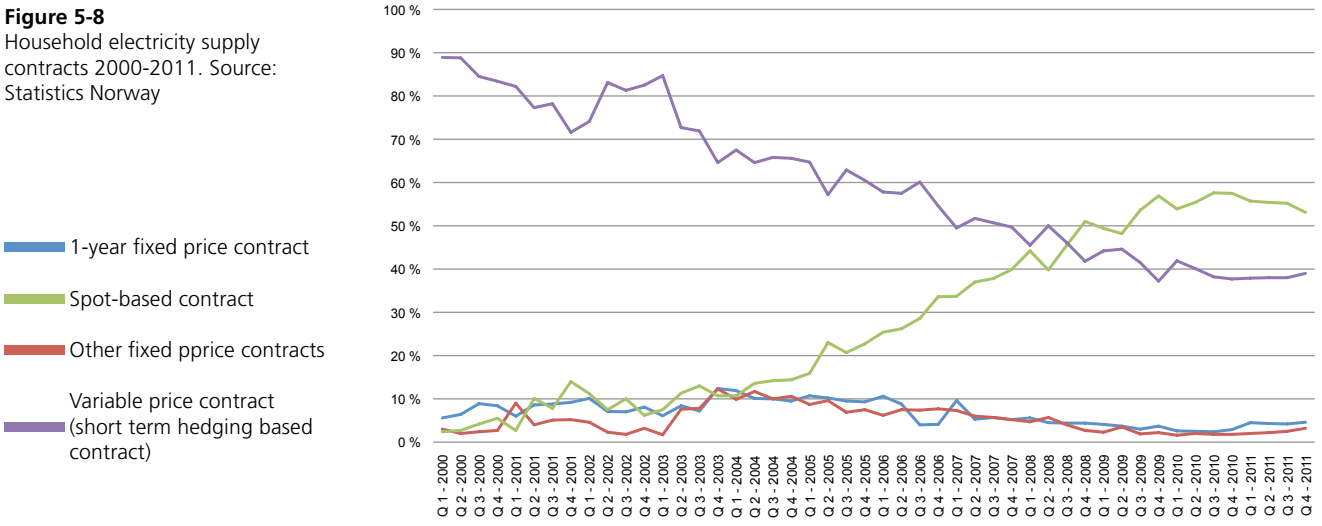


Figure 5-9 illustrates end-user contract price developments in 2011. A large hydrological deficit at the start of 2011 held household prices high for all regions in Norway during the first quarter. The deficit was later turned by high precipitation and a mild winter season, pushing prices downwards. The influence of the above normal precipitation is clearly seen by the slide in prices autumn 2011. Nevertheless, prices have been relatively equal across all regions in Norway with occational differences due to bottlenecks in the transmission network.

Figure 5-9
Spot based and standard variable electricity prices. Norwegian øre. Source: The Norwegian Competition Authority and NVE

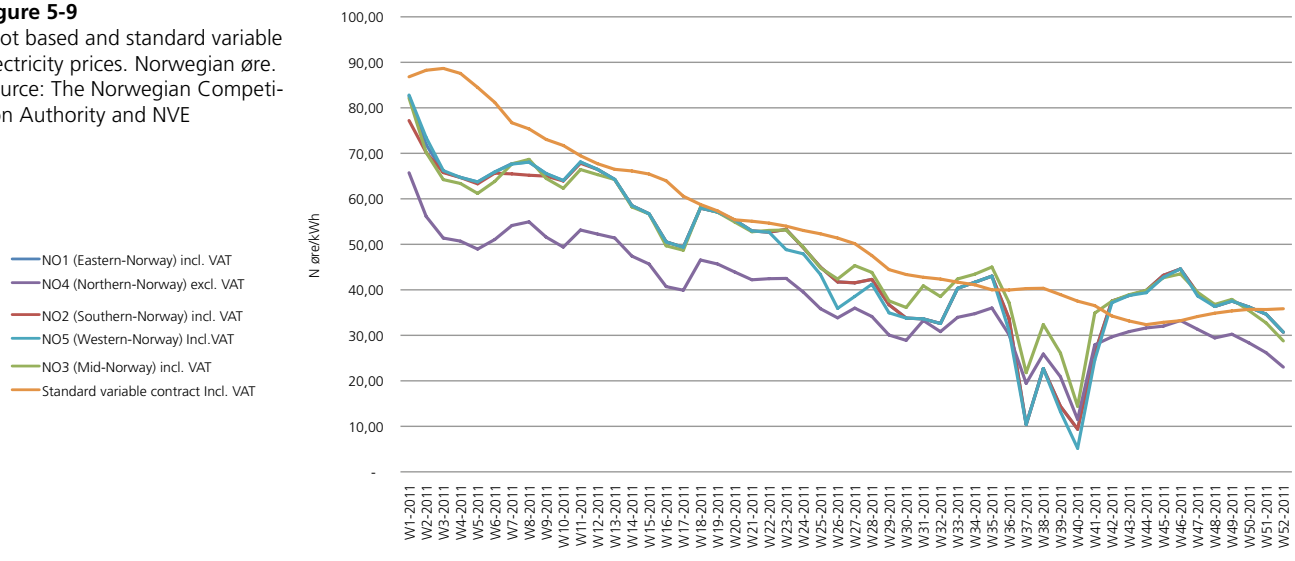


Figure 5-10
Spot price and supplier switches, 2007-2011. Norwegian øre
Source: Nord Pool Spot and NVE

Approximately 258,700 households switched to a different supplier in 2011, slightly less than 11 per cent of all households in Norway. This indicates that there are a large number of active household customers, which should maintain a reasonable high level of competitive pressure on the retailers in the market. However, many of the customers still hold a contract with their dominant local supplier at the end of 2011. This suggests that there still is potential for increasing the competitive pressure.

Figure 5-10 shows a close relationship between the retail price for spot-based contracts and the switching behaviour in the end-user market. In periods with high spot prices we see an increased amount of switching. The main driver for this correlation is that in high price periods the price differences between the different suppliers tend to become larger. This is specially the case for standard variable contracts, since any modification of the price need to be published two weeks in advance. Another fact is that suppliers will not modify their price at the same time, so the potential gap between the different suppliers may become larger and thus incentivise customers to switch. In addition, the media tends to put more attention on the potential gains to be had from switching in times with high prices, something that has an impact on the consumer's behaviour.

6 The market for district heating

6.1 The Energy Act

NVE issues licences for district heating. A licence for district heating is a permission to build and operate a district heating plant with a certain installation, within a certain geographical area. According to the Energy Act, an installed installation above 10 MW requires a licence, and only one licence can be given within one geographical area. The municipalities may, when a licence is issued, adopt compulsory connection to the district heating system for new and rehabilitated buildings.

The Energy Act specifies that the price of district heating should not exceed that of the alternative heating source, which in general is mainly electricity. Customers can complain about district heating prices to NVE. NVE regulates the market for district heating by issuing licences and through price regulation.

6.2 Licences in 2011

In 2011 NVE issued:
5 new licences for district heating.
25 changes in or extensions of valid licences for district heating.
With an estimated 75 percentage of the installation covering base and peak load, and an expected operating time of 2,200 h/year, these licenses have released about 400 GWh new heat production. NVE refused three district heating applications. Four licenses have been withdrawn because the developer has failed to comply with the licensing terms for commissioning.

6.3 NVE's price regulation in 2011

NVE received six complaints about district heating prices in 2011.

7 International regulatory cooperation

NordREG is a cooperative organization for Nordic regulatory authorities in the energy field with a mission to actively promote legal and institutional framework and conditions necessary for developing the Nordic and European electricity markets.

CEER, the Council of European Energy Regulators is the voice of Europe's national regulators of electricity and gas at EU and international level. CEER is a non-for-profit association formed in 2000 with a Brussels-based secretariat. Today it has 29 members - the energy regulators from the 27 EU-Member States,Iceland and Norway. From 2012 Switzerland will participate as observer. Lord Mogg is the President of CEER. A key objective of CEER is to facilitate the creation of a single, competitive, efficient and sustainable EU internal energy market that works in the public interest and to be a base for the exchange of best practices among regulators.

CEER also strives to share regulatory experience worldwide through its links with similar associations in America (NARUC and FERC), in Russia (FTS) and in Central/Eastern Europe (ERRA) and its membership in the International Energy Regulation Network (IERN).

CEER works closely with and supports the work of the Agency for the Cooperation of Energy Regulators (ACER). CEER deals with many complementary (and not overlapping) issues to ACER's work such as international issues, smart grids, sustainability and customer issues.

ERGEG, the European Regulators' Group for Electricity and Gas was set up in 2003 by the European Commission as its advisory body on internal energy market issues. It was made up of the national energy regulatory authorities of the EU's Member States. Norway has been participating as observer. Its purpose has been to facilitate a consistent application of the provisions set out in Directive 2003/54/ EC, Directive 2003/55/EC and Regulation (EC) No 1228/2003, as well as of possible future Community legislation in the field of electricity and gas.
ERGEG was dissolved on 1 July 2011 by a European Commission decision. The work performed by ERGEG has been taken over by ACER.

ACER, the Agency for the Co-operation of Energy Regulators was created in 2009 as a part of the third internal market package, Regulation (EC) No 713/2009. ACER has its seat in Ljubljana and is an EU Agency with its own staff and resources. ACER's aim is to supplement and coordinate at EU level electricity and gas regulatory authorities in participating in developing rules for the internal energy market, and acting as an advisory body on various energy-related topics especially related to cross border issues. Norway has for the time being no formal status in ACER. This will be provided for through the EEA process of implementing the Third Package in Norway.

ICER, International Confederation of Energy Regulators is a voluntary framework for cooperation between energy regulators world-wide. The aim is to improve public and policy-maker awareness and understanding of energy regulation and its role in addressing a wide spectrum of socio-economic, environmental and market issues. ICER focus on four key areas: reliability and security of supply; the role of regulators in responding to climate change; competitiveness and affordability; and the independence, powers, responsibilities, best practices and training of regulators. ICER membership includes over 200 regulatory authorities and spans 6 continents. ICER is currently chaired by Lord Mogg, President of the Council of European Energy Regulators (CEER).

7.1 Regulatory cooperation in the Nordic region – NordREG

The Nordic energy regulators cooperation through NordREG is based on a strong consensus and common understanding of the Nordic market. Through mutual efforts and contributions NordREG members identify areas of work that can create added values for the Nordic and European electricity market.

One of the main priorities of NordREG is to achieve a common Nordic retail market. During the last years NordREG has worked intensively on designing the main elements of the future Nordic common retail market with a special focus on business processes. The project is documented in a wide range of reports aimed at identifying problems and proposing solutions. Reports are published on the NordREG web page: www.nordic-energyregulators.org. In 2011 NordREG published two major documents setting out the framework for the future market model; Rights and obligations in the customer interface and Recommendations on the future billing model. NordREG has stated that the supplier centric market model with mandatory combined billing is the target for the harmonised Nordic market.

In addition to the focus on a common retail market NordREG continues to work on measures to develop and improve the wholesale market. The topics of this work are influenced by European developments and the move towards the European target model. Furthermore, possible actions to improve handling of price peaks as experienced in the Nordic wholesale market, have been in focus.

NordREG each year publishes a Nordic market report describing and analysing the market developments. There is also a separate work stream on network regulation.

7.2 Regulatory cooperation at European level – CEER/ERGEG/ACER

During 2011, the regulatory cooperations have worked on a broad range of technical issues. This included energy efficiency, renewable energy support schemes, generation adequacy treatment, smart grids, quality of supply and last but not least, the development of several framework guidelines under the third package. Extensive work has also been done on the interdependencies of energy and financial markets, market integrity and regulatory oversight, in order to prepare for the new Regulation on Energy Market Integrity and Transparency (REMIT) adopted on 8 December 2011.

This year more focus has been put on a wide range of customer issues from complaint handling and price comparison tools that help customers compare offers to alternative dispute resolutions, smart meters, demand-response and retail market design.

Implementation of the third package and the goal set by the European Council in February 2011 of having the internal energy market and the target model ready in 2014 have been in focus.

In order to contribute to and have influence on the development of the energy market and its rules, NVE has given priority to the participation in the working groups of the regulatory cooperations. We believe that the best way of achieving influence is through active participation at all levels in the regulatory cooperations. Approximately 20 NVE experts have participated in their field of expertise. The main priorities have been related to the interpretation of the third energy market package, working towards achieving the target model with market coupling in the North West Region, transparency in the wholesale market and retail market design. NVE has given special attention to the four framework guidelines being developed according to the third package; the framework guidelines on electricity grid connection which is a pilot project adopted by ACER in July 2011, the framework guidelines on capacity allocation and congestion management adopted by ACER in July 2011, the framework guidelines on system operation adopted in December 2011 and also the start of the fourth framework guideline, the one on electricity balancing.

CEER and ERGEG publications, consultation documents and press releases can be found at the following webpage: http://www.energy-regulators.eu. ACER publications, consultation documents, adopted documents and press releases can be found at http://www.acer.europa.eu/Pages/ACER.aspx.

8 Legislation and legal amendments

8.1 Most important legislation concerning the regulation and monitoring of the energy market

- The Energy Act (Act No 50 of 29 June 1990 Relating to the Generation, Conversion, Transmission, Trading, Distribution and Use of Energy etc.)
- The Energy Act Regulation (Regulation No 959 of 7 December 1990 Concerning the Generation, Conversion, Transmission, Trading, Distribution and Use of Energy etc.)
- Regulation on Metering, Settlement, and Invoicing (Regulation No 301 of 11 March 1999 Governing Metering, Settlement, and Coordinated Action in Connection With Electricity Trading and Invoicing of Network Services)
- Regulation on the Control of Grid Operations (Regulation No 302 of 11 March 1999 Governing Financial and Technical Reporting, Income Caps for Network Operations and Transmission Tariffs)
- Regulation Relating to the System Responsibility in the Power System (Regulation No 448 of 7 May 2002 Relating to the System Responsibility in the Power System)
- Regulation on Quality of Supply (Regulation No 1557 of 30 November 2004 Relating to the Quality of Supply in the Norwegian Power System)
- Regulation on Certificates of Origin (Regulation No 1652 of 14 December 2007 on Certificates of Origin of the Production of Electricity)
- Regulation on Qualifications (Regulation No 263 of 10 March 2011 on Requirements as to Qualifications etc. of Installation Licensees and Local Area Licensees)
- Regulation Relating to Energy Planning (Regulation No 1607 of 16 December 2002 Relating to Energy Planning)
- Regulation on Emergency Preparedness (Regulation No 1606 of 16 December 2002 on Emergency Preparedness in the Power Supply)
- Regulation on Rationing (Regulation No 1421 of 17 December 2001 Governing the Planning and Implementation of Requisitioning of Power and Enforced Reductions in Supply in Connection with Electricity Rationing)
- Regulation on the Energy Fund (Regulation No 1377 of 10 December 2001 Governing the Payment of a Levy on the Grid Tariff into the Energy Fund)

	Amendments to the Energy Act	Entry into Force
1	To adapt to new developments, including possible threats to a secure operation of power supply, the rules on the power supply preparedness organisation have been amended. In time of war or state of emergency, control of power supply may be passed to that organisation. Following the amendments, said passing of control is no longer mandatory, all though still foreseen to remain the main rule in practice. Further, according to the amended rules, the organisation may also be passed control of power supply in peacetime in any extraordinary situation that may cause damage to or prevent generation, conversion, transmission, distribution, or trading of electricity. Said represents an amendment compared to the former rule, scope of which was limited to situations in peacetime were damage has already occurred. Other amendments involve, inter alia, a more thorough specification of the role of the emergency planning authority, the obligation to be a member of the organisation, and the duties imposed on those members, including the duty to ensure effective preparedness measures and information security.	27 January 2012
2	To provide for implementation of Directive 2002/91/EC of the European Parliament and the Council on the Energy Performance of Buildings, a provision in the Energy Act imposing on the owner a duty to make available to the prospective buyer an energy performance certificate, is extended to comprise not only voluntary, but also forced sale.	27 January 2012
3	Following amendment of the Energy Act, the duty imposed on everyone to provide the Ministry with information necessary for the execution of the Ministry's authority pursuant to the Energy Act, is no longer limited neither to information of a technical or economical nature nor by statutory duties of confidentiality. As the Ministry has delegated relevant powers to NVE, said also applies to NVE when it retrieves information.	27 January 2012

	Amendments to Appurtenant Underlying Regulations	Entry into Force
I	To provide for the implementation of Regulation (EU) No 774/2010 of the European Commission on laying down guidelines relating to inter-transmission system operator compensation and a common regulatory approach to transmission charging, necessary amendments have been made to the Norwegian regulation implementing Regulation (EC) No 1228/2003 of the European Parliament and the Council on conditions for access to the network for cross-border exchanges in electricity.	5 April 2011
II	According to the new Regulation on Qualifications, grid companies holding a local area licence, and producers holding an installation licence, are, inter alia, obliged to ensure that its own personnel are qualified as specified in the regulation. For instance, grid companies are obliged to keep an own internal staff with the qualifications necessary to carry out main parts of the tasks relating to operational control and administration of the grid.	1 July 2011 Requirements to be fulfilled by 1 July 2013
III	Following amendment of the Regulation on Metering, Settlement, and Invoicing, all grid companies are obliged to install smart meters in all metering points in their grid by 1 January 2017. The amendment also includes a duty to install smart meters in 80 percent of metering points by 1 January 2016.	8 July 2011
IV	Following a new decision by the Ministry on delegation of authority to NVE, the Ministry's former reservation as to cases of fundamental character and cases involving significantly conflicting public interests, has been repealed.	25 October 2011
V	Ministry instruction of 13 August 1993 regarding the organizing of the power supply preparedness organisation is adopted as a regulation.	1 January 2012
VI	In order to correctly implement Directive 2009/28/EC of the European Parliament and the Council on the promotion of the use of energy from renewable sources (the Renewables Directive), the Energy Act Regulation has been amended to impose on grid companies a duty to present a reasonable and precise timetable for receiving and processing a request for grid connection, as well as a reasonable indicative timetable for any proposed grid connection.	5 January 2012

	Amendments to Appurtenant Underlying Regulations	Entry into Force
VII	In order to correctly implement the Renewables Directive, the Energy Act Regulation has been amended to impose on NVE a duty to review the rules on investment contribution by grid customers and adopt any amendments necessary to ensure consistency with Norway's duties pursuant to the EEA Agreement. NVE shall conduct said review by 30 June 2013, and, thereafter, by 30 June every second year.	5 January 2012
VIII	In order to correctly implement the Renewables Directive, requirements pursuant to the Regulation on Certificates of Origin on the content of certificates of origin are amended to reflect the Directive.	5 January 2012
IX	In order to correctly implement the Renewables Directive, the Regulation Relating to the System Responsibility in the Power System has been amended. Following the amendment, the transmission system operator is obliged to report to NVE on significant measures taken to curtail renewable energy sources in order to guarantee the operational reliability of the national electricity system and security of supply. The reporting shall include a factual description of the measures as well as an indication of the corrective measures to be taken in order to prevent inappropriate curtailments.	6 January 2012
X	For the avoidance of doubt, it has been clarified in the Regulation on Metering, Settlement, and Invoicing that NVE may grant exemptions from the abovementioned duty to install smart meters.	31 January 2012
XI	Following amendment of the Energy Act Regulation, NVE's power to specify requirements for coordinated setting of tariffs, is clarified. The purpose of the clarification is to avoid any doubt as to the legal basis for NVE's decision of 7 March 2012 on coordination of the central grid and regional grid tariff setting.	28 February 2012
XII	The regulation on the implementation of Regulation (EEC) No 1056/72 of the European Council of 18 May 1972 on notifying the Commission of investment projects of interest to the Community in the petroleum, natural gas and electricity sectors has been repealed.	2 March 2012

Norwegian
Water Resources and
Energy Directorate

Middelthunsgate 29

P.O.Box 5091 Majorstuen

N-0301 Oslo

Norway

Telephone: + 47 22 95 95 95

www.nve.no