Report on regulation and the electricity market

2011

Iceland

The National Energy Authority in Iceland (NEA)

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1. Foreword

This report is written by the staff of the National Energy Authority in Iceland (NEA). It provides a comprehensive overview of the state of the electricity industry in Iceland and the regulatory framework surrounding the industry. The report follows the common reporting structure created by the European Commission and ERGEG.

Iceland is party to the European Free Trade Agreement and a member of the European Economic Area (EEA). Therefore EEA procedures regarding the adoption of EU directives are applicable to the Icelandic legislative process. The Electricity Directive 2003/54/EC passed through the EEA Committee in December 2005. The report fulfils part of the reporting requirements in Directive 2003/54/EC.

The Icelandic Parliament, or Althingi, passed the Electricity Act, no. 65/2003, in 2003[1]. The Act implements EU Directives 96/92 and 2003/54 concerning common rules for the internal market to electricity, but is broader in scope as it contains comprehensive legislation on the generation, transmission, distribution and sale of electricity. The Act combines legislation for various legal areas which were previously dealt with in separate Acts, including the Inland Waters Act no. 15/1923; the Energy Act no. 58/1967; the Act on Electric Generation Stations no. 60/1981; and various acts on individual energy enterprises. The Electricity Act was implemented in stages, but has by now been fully implemented and amended several times.

The Act stipulates the generation and sale of electricity as competitive activities. They are, however, subject to public licensing. The transmission of electricity is carried out by a separate, independently managed enterprise. Six (seven at the time of adoption of the Act) distribution system operators have exclusive rights to distribute electricity in their areas of operation. The NEA supervises and regulates the transmission and distribution enterprises, which includes the regulation of revenue caps, tariffs and the quality of electricity and security of supply. In cases where integrated companies operate in generation, sales and distribution, separate accounts must be kept for each area of activity. The generation and sale of electricity are under the surveillance of the Icelandic Competition Authority, although the NEA issues and monitors operating licenses to the competing firms.

There are certain conditions currently present in Iceland which are unfavourable to a competitive electricity market. A single firm dominates electricity production as well as the wholesale of electricity, with 74% of market share in generation. Customer switching has been very low since 2006 when the electricity market was liberalised, as only 0 to 2.5% of customers have switched suppliers each year, with the majority of switching customers being industrial consumers. Despite these negative conditions, electricity prices have stayed fairly low since liberalisation began.

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[1] Re. English version: http://eng.idnadarraduneyti.is/media/Acrobat/raforkulog_enska.pdf

2. Main developments in the electricity market

The Icelandic electricity system is an isolated system without any connection to other countries. There were 314,000 residents in December of 2010, living mostly along the coastline of 103 thousand square kilometres of land. Per capita electricity consumption is however among the highest levels in Europe, as energy-intensive industry consumes 80% of generated electricity. 99.99% of electricity produced in 2010 was from renewable sources.

Although liberalisation was introduced through the Electricity Act in 2003, retailers still purchase their supply through long term contracts, as no actual electricity trading hub yet exists in Iceland, However, the transmission system operator is currently developing such an exchange, scheduled to be operational in 2012. Most retailers are either also producers themselves, or closely connected through ownership or history to a corresponding producer.

Competition occurs in three distinct ways in the Icelandic market; wholesale competition, retail competition and competition for energy intensive industry. There is one dominant producer, with 74% of electricity generated, who does not participate in the retail market and sells largely directly to energy-intensive industry through long-term power purchase agreements. There are very low rates of customer switching in the retail market and the majority of customers buy from the same retailer which was once the vertically-integrated utility in the area, prior to liberalisation. Despite what remains to be a relatively stagnant market, electricity prices to Icelandic end-users are among the lowest in Europe.

There is a single transmission company and six distribution companies which are licensed by the NEA to distribute electricity in their designated areas. These aspects of the market are subject to revenue caps and tariff regulation by the NEA. One of the seven DSOs sold its assets and distribution rights to the neighbouring DSO in 2009, making 2010 the first year where only 6 DSOs were operating. The trend of mergers continues for Icelandic DSOs which have decreased from 8 to 6 since 2003 when the Electricity Act was passed.

Wholesale market

No significant changes occurred in the wholesale market during 2010. There are five major producers of electricity in Iceland; the national power company Landsvirkjun, Reykjavik Energy, HS Orka, Fallorka and Orkusalan. All of these companies are publicly owned except for HS Orka, which was owned by Canadian firm Magma Energy Corp. in 2010, which became Alterra Power in 2011 after merging with another firm.

The three largest companies generate 97% of total electricity produced and are active in the wholesale market. The dominant producer, Landsvirkjun, produces 74% of total electricity, an increase of 1% from the year prior. Smaller producers either sell directly to their own retail division or enter 7-10 year contracts with retail sales companies. 80% of electricity consumption is by energy intensive industry. Energy intensive industry is supplied with electricity through long-term power purchase agreements (i.e. contracts valid for over 10 years) and therefore never directly enters the wholesale market to retailers.

The TSO has been developing a power exchange which will allow retailers to purchase electricity directly from producers. The opening was delayed in 2010 due to the 2008 financial crises in Iceland, and is now scheduled to be operating by mid-2012. No specific measures were taken in 2010 to foster wholesale competition.

Retail market

a. Developments in market concentration

No major changes occurred in Iceland's retail market in 2010. There are a total of seven retailers, all of which were part of a DSO at one time. One sales company, Húsavík Energy, operates a small Kalina cycle geothermal plant which was offline for 2010-2011. There are

plans underway to get it online again. All of them still maintain dominant share of their original customers, and of whom only four traders have been active outside their old DSO area.

The electricity market is open for all users to select a sales company. The largest sales company supplies 37% of electricity to the general market, the second largest 33% and the third largest 17%.

b. Development of switching
All customers were granted the ability to choose their retail supplier in 2006. Since then, customer switching has been low. Only 0.4% of residential customers switched suppliers in 2010, while 1.5% of industrial and commercial customers switched supplier. One reason for this low rate could be that advertised prices are very similar for all of the companies. Information on the renegotiation of contracts with the same supplier is not available.

c. Price Development
The total price of electricity for households, services and light industry was ISK 15.10 per kWh inclusive of VAT (24.5%) and energy tax of 0.12 ISK/kWh (the price is according to Reykjavik Electricity's tariff at the end of 2010, calculation based on 4000 kWh per year) which divides between distribution and supply thus: 9.16 and 5.94 per kWh.

No specific measures were taken in 2010 to encourage retail competition. The small size of the Icelandic end-user market, the low price of electricity and the lack of interconnections to other markets will remain as barriers to a dynamic retail market in Iceland in the near future.

Public Service Obligations and Consumer Protection

A total of three complaints were filed with the NEA in 2010 relating to connection charges, metering or energy tariffs. The complaints are made to and filed with the NEA.

DSOs must advertise any changes in tariffs on their websites. The sales companies are required to do the same, although their tariff changes are not subject to the approval of the NEA. The NEA, in cooperation with the Consumer Agency, operates an online price comparison tool. It compares available contracts of the market. The customer can easily carry out an evaluation and make choose a supplier through the price calculator.

Infrastructure

Virtually all inhabitants of Iceland, except those living on small islands off the coast and on remote farms, are connected to a single transmission system through six distribution networks. In 2010 the transmission system consisted of approx. 3,169 km of high voltages lines (33, 66, 132 and 220 kV) and around 70 substations and transformer stations.

The Icelandic electricity system has expanded considerably during the last 15 years, mainly due to the increased production of power intensive industrial facilities and the commissioning of new ones. The total length of the TSO network in Iceland is approximately 3 169 km while the length of the DSO network (sum of all DSO) is approx. 22,565 km.

Two major transmission projects were completed in 2010. A 24.6 km line was completed to provide a second connection between Nesjavellir Power Plant and the capital city area. The 140 MVA line is mostly below ground. The TSO also completed a 12 km, 28.5 MVA underground cable in the rural West Fjords area, with the aim of shortening the distance of the existing connection and decreasing supply disruptions.

During the period from 1995 to 2010, installed capacity increased from 1,049 MW to 2,579 MW and generation increased from 4,976 GWh to 17,059 GWh. The increase in electricity demand from power intensive industries has called for considerable investments in the transmission system.

The long term investment needs of the Icelandic electricity sector are heavily dependent on the developments of power intensive industry. A medium or long term forecast for power intensive industries does not exist. There is uncertainty regarding investment needs due to increased demand from power intensive industries after 2012 but such investments may amount to ISK 5 to 7 billion per year.

Annual growth in the general public market is estimated at approximately 1% over the next ten years. The distribution system operators (DSOs) and the transmission system operator (TSO) create and publish investment plans for the general public market.

According to the TSO, medium and long-term investment and reinvestment needs for the transmission system are estimated at ISK 3 to 4 billion over the next three years. All investments in the transmission system are privately financed with cash flow generated from operating activities, issuance of bonds in the capital markets and borrowings in the loan market.

No changes in tariff structure took place in 2010. Each DSO increased its tariffs at least once during the year, after having obtained the approval of the NEA. Transmission rate structures, as defined in the Electricity Act, ensure that existing customers connected to the transmission system do not face an increase in prices when new entrants are connected to the system.

Regulation/Unbundling

The Electricity Act stipulates two regulatory authorities for monitoring compliance with the act; the NEA, which is under the Ministry of Industry, Energy and Tourism (hereinafter the Ministry of Industry), and the Competition Authority, which is under the auspices of the Ministry of Economic Affairs.

A bill, proposing amendments to the Electricity Act, was passed by the Parliament in 2011. The major changes included the extension of the income cap period from three to five years, the capacity of plant required to connect directly to the transmission system and the way in which energy intensive users are defined was broadened.

The acquis concerning Third Energy Market Package are under review in the EFTA Working Group for Energy Matters. The EFTA Secretariat has sent Standards Sheets to the EFTA States regarding possible inclusion of these acquis into Annex IV to the Agreement on the European Economic Area. A decision by the Ministry of Industry on the possible incorporation of these acquis into the EEA Agreement has not yet been made.

Security of supply

Iceland is an island with no interconnections to mainland Europe and therefore no international trade in electricity. Nearly all of Iceland's electricity is produced from domestic and renewable sources. Production potential in Iceland is such that power intensive industries have been sought out to utilise Iceland's electric supply. Generation from the geothermal and hydropower sources used in Iceland is baseload and not subject to intermittency issues.

The Electricity Act stipulates that the TSO and the distribution system operators (DSOs) are responsible for maintaining and developing the transmission and distribution systems in an economic manner, taking into account security, efficiency, reliability of supply and the quality of electricity.

At the end of 2010, installed capacity of power plant was 2,579 MW. All electricity produced is renewable baseload electricity. The increase in installed capacity in 2010 was 5 MW, which constitutes a 0.2% increase in installed capacity. The increase in electricity production was 367 GWh; or a 2.2% increase. Total electricity consumption was 17,059 GWh in 2010. Estimated production capability is 19250 GWh which yields reserves of 14% in the year 2010. The maximum annual peak load of 2,181 MW occurred on December 21st.

3. Regulation and Performance of the Electricity Market

The main statutory objectives of the NEA are the promotion of compliance with the Electricity Act no. 65/2003, the purpose of which is the promotion of an economic electricity system and thereby the strengthening of Icelandic industry as well as regional economic development. To this end, a competitive environment shall be ensured for the generation and trade of electricity, with such restrictions, as may prove necessary, for the security of supply and other public interests, effectiveness and efficiency in the transmission and distribution of electricity shall be promoted, the security of the electricity supply system and consumer protection shall be ensured and finally the use of renewable energy sources and observance of other environmental criteria shall be promoted. Article 24 of the Act stipulates the NEA as the national regulatory authority (NRA) for electricity. Various acts and regulations relating to the environment apply to the construction and operation of electricity installations, such as the Planning Act no. 123/2010, the Act on Health and Pollution Control no. 7/1998 and the Act on Environmental Impact Assessment no. 106/2000.

The NEA has 35 employees and the Competition Authority has 25. Both authorities have a number of functions not related to the regulatory functions stipulated in the Electricity Act. There were 2.2 full-time positions devoted to electricity regulation at the NEA, filled by an electrical engineer, an industrial engineer and a lawyer. The NEA has no ownership interests in the electricity industry and is independent from the economic interests in the electricity industry. The NEA is an independent legal entity with its own budget adopted by Parliament and power to act in the scope of its competences.

As stipulated by Article 31 of the Electricity Act, the following fees are levied on electrical network companies to fund the surveillance of the NEA:

- the transmission company is charged 0.002 ISK per kWh of transmitted power
- the distribution companies are charged 0.005 ISK per kWh of distributed power

This amount was increased in 2012 and plans are underway to increase the staff of the electricity regulation team.

The NEA is permitted to apply daily fines in the event that the NEA finds that an operation subject to regulatory monitoring does not comply with conditions. These potential breaches include the violation of an agreement pursuant to Article 8 of the Electricity Act or the conditions of a licence or other authorisations. The nature of the negligence or violation may be taken into consideration in the determination of daily fines. The party in question shall be notified of a decision to impose daily fines by letter in a verifiable manner. No changes were made to this article in 2010.

The administrative decisions made by the NEA regarding the activities and pricing policies of the transmission system operator and distribution system operators may be appealed to the Appeals Committee on Electricity Matters. Other administrative decisions of the NEA may be appealed to the Minister of Industry, Energy and Tourism.

The NEA is a member of the Council of European Energy Regulators and participates as an observer in ERGEG procedures.

The transmission system operator (TSO), Landsnet hf., owns and operates the transmission system, consisting of lines from 33 kV up to 220 kV. Six companies are licensed to own and operate distribution systems. Each company has the status of distribution system operator (DSO) in their region and is responsible for distribution to that geographic area. The areas vary in size and population. The DSOs are all owned by either the Icelandic State or one or more municipalities. Most of the DSOs also operate hot and cold water distribution systems. The distribution networks are operated on 132 kV and lower.

Many tasks which are sometimes handled by European regulatory agencies are entrusted to the TSO under the close supervision of the NEA. The TSO issues and publishes a series of terms and conditions named the Grid Code[2], which outlines various rules, guidelines and standards for the electricity system's development and use. This includes rules for electricity transmission, the transmission system's design, system management and various commercial matters. The Grid Code is subject to the approval of Ministry of Industry.

3.1 Regulatory Issues [Article 23(1) except "h"]

3.1.1 Management and Allocation of interconnection capacity and mechanisms to deal with congestion

Only two transmission lines are congested under certain operational conditions. The TSO has issued a dedicated Grid Code, no. C6, Stipulation for Congestion Management[3], which describes the procedure for managing such issues. Due to the fact that the Icelandic electricity system is an isolated one, there is no existing cross border link.

All power plants with a generation capacity of 10 MW or more must be connected to the transmission system. Electricity from the transmission system is fed to distribution system operators (DSOs) and power intensive industries at 77 delivery points.

The TSO is required to ensure the availability of a forecast on the projected demand for electricity and a plan for the development of the transmission system. The Energy Forecast Committee, which is a cooperation forum of the key ministries, agencies, companies and associations in the field of energy operated since 1976, each year issues a forecast of the increase in electricity consumption.

The TSO is authorised to pay Landsvirkjun compensation for transmission congestion on one particular link that primarily serves energy-intensive industry. No such compensatory payments were made in 2010.

The TSO also publishes an annual report on energy balances, network operations, transmission capacity, network security, load flows, new connections and networks and prognoses on future reinforcements and extensions (Ref.: Landsnet, Energy balances 2013 – 2014 and Kerfisáætlun 2011 – 2015).

3.1.2. The regulation of the tasks of transmission and distribution companies

The Electricity Act states: "One company, appointed by the Minister of Industry, Energy and Tourism, shall be responsible for the transmission of electricity and system management pursuant to the provisions of this chapter. The company shall be an independent legal and taxable entity".

The competencies of the TSO are stipulated in Chapter III of the Electricity Act. The TSO is responsible for the development of the transmission system in an economic manner, taking into account security, efficiency, reliability of supply and the quality of electricity. The TSO possesses the exclusive right to construct new transmission facilities. According to Article 9 of the Electricity Act, the TSO shall:

- Connect customers to the transmission system on request, provided that they fulfil the technical conditions required and that they pay a connection fee according to the provisions of a tariff. However, new customers may be denied access to the

2 Grid Code in English, http://www.landsnet.is/index.aspx?GroupId=1125&TabId=1135
[3] Grid code C6, in English: http://www.landsnet.is/Uploads/document/Netmali/C6_ensk_utgaf_a_neti.pdf

transmission system on grounds pertaining to the transmission capacity, security and quality of the system. Such denial of access shall be in writing and reasoned

- Provide electricity to compensate for electricity losses in the system
- Provide reactive power for the system to utilise transmission capacity and ensure voltage quality
- Ensure the operational reliability of the system
- Ensure the availability of a forecast of future electricity demand and a development plan for the transmission system.

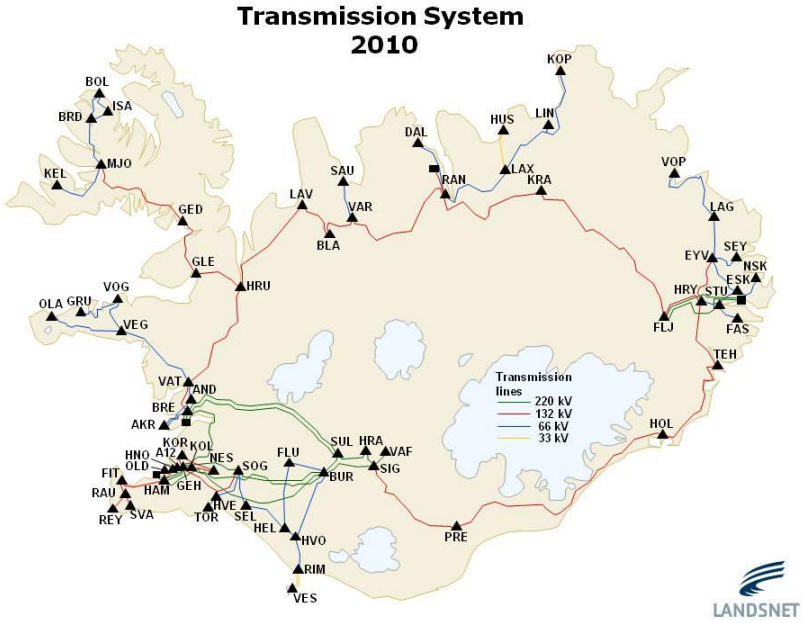

Figure 1: Landsnet's transmission system in 2010

The TSO shall provide an easily accessible, non-discriminatory marketplace for market participants, producers and users, for the whole of the country. As previously noted, the TSO is permitted to run a power exchange, the cost of which should be kept separate from other activities. The TSO shall have access to the information from producers, distribution system operators and suppliers which is necessary for the performance of its function.

The Electricity Act does not stipulate methods on how to allocate capacity.

In paragraph 3, items 1 and 2, of Article 16 of the Electricity Act, no. 65/2003, the following is stated: "A distribution system operator shall, *inter alia*:

- Connect all parties that so request to the distribution system, provided that they fulfil the required technical conditions and pay a connection fee specified in the tariff. However, new applicants may be denied access to the system on grounds pertaining to the transmission capacity, security and quality of the system. Such denial of access shall be in writing and reasoned.
- Ensure reliability in the operation of the system.

Furthermore, Article 16 of the Electricity Act states the following: "Regulation of the quality of electricity and security of delivery: Producers, the transmission system operator and distribution system operators shall establish internal controls on the quality of electricity and security of delivery. A government regulation shall specify the requirements to be met by internal controls pursuant to Paragraph 1 [of Article 16] and their arrangement, including monitoring by accredited inspection bodies."

Network Tariffs

The NEA determines a revenue cap for the transmission system operator for revenues earned from transmitting electricity to DSOs on the one hand, and to energy intensive users on the other hand. The revenue cap is based on criteria established by the Electricity Act. The revenue cap is set for a three year interval, but may be reviewed annually if the NEA determines that criteria have changed enough to warrant such a reassessment.

The TSO establishes a tariff for services determined by its revenue cap. There are two separate tariffs; one for the delivery of electricity to DSOs and another for the delivery of electricity to power intensive production. The published tariff on delivery to DSOs is for the delivery of electricity at 66 kV. If electricity from the transmission system is delivered at a higher voltage, the tariff is reduced accordingly. Per the new amendments to the Electricity Act taking effect in 2011, the TSO is permitted to deliver electricity at a lower voltage to power intensive customers. When the customer requests a delivery at a lower voltage, a special charge must be paid for the service. All variations in the standard of delivery by the TSO are charged according to the reliability and quality at each point of delivery.

Transmission tariffs are based on a standing rate for injection, and a standing and usage rate for withdrawal. The same tariff applies for feeding into the transmission system from all power plants. In instances where plants are connected to the transmission system through a distribution system the DSO collects the charge. Individual final customers connecting to the transmission system shall enjoy more favourable terms of payment if they can demonstrate that their trade improves or has improved the efficiency and use of the system.

The NEA also sets a revenue cap for DSOs on income earned from distributing electricity. The revenue cap is based on a criteria established by the Electricity Act. The revenue cap is set for a three year period. However, the cap may be reviewed annually if criteria change materially, as determined by the NEA. The DSO charges a tariff for services in accordance with the revenue cap. The same tariff applies in the distribution zone of each DSO for the consumption of low voltage electricity, i.e. 230–400 V. If electricity from the distribution system is delivered at a different voltage the tariff may be adjusted accordingly.

Two DSOs have a dual tariff structure and charge a separate and higher tariff to customers in rural areas. Distribution system operators are required to apply to the NEA for permission to charge a separate tariff in rural areas where the cost of distribution is demonstrably higher than in urban areas. In order to charge the rural tariff, a minimum of 5% of the total use in the DSO's zone must be defined as a rural area as defined by Regulation 1050/2004. Figure 2 shows the development of distribution tariffs from 2005 to 2010.

All tariffs for transmission and distribution services as well as their applicable terms must be approved by the NEA. The TSO and the DSOs are required to submit any changes in transmission and distribution tariffs to the NEA for approval two months before their intended effect. The NEA then estimates the future income the new tariffs would generate with the assigned revenue cap for the corresponding company. If the NEA determines that the submitted tariff is in violation of the Electricity Act or its associated regulations, the Authority shall provide its comments to the TSO or DSO in question within two weeks of the submission. In case of conflict, the NEA may require rectification of the tariff which will not take effect until the matter has been rectified. The TSO and the DSOs are obliged to publish the tariff.

The year 2009 was the last year of the last three year regulation period. A revenue cap was set for 2010 which became the only year during that period as a new period was set. Some of the 2011 amendments to the Electricity Act related to the revenue cap structure. The Electricity Act stipulates a rate of return for both new and existing assets during their depreciation time equivalent to the rate of return on five-year government backed bonds. This was changed to the weighted annual cost of capital in the 2011 amendment

The Electricity Act stipulates no other incentive measures or investment incentive schemes.

The NEA aims to introduce benchmarking projects for the TSO and DSOs, which will be used for the next regulatory period in the form of an efficiency requirement with a use of benchmarking of companies. An independent committee appointed by the NEA shall determine the efficiency requirement, according to changes that were made with the 2011 amendment

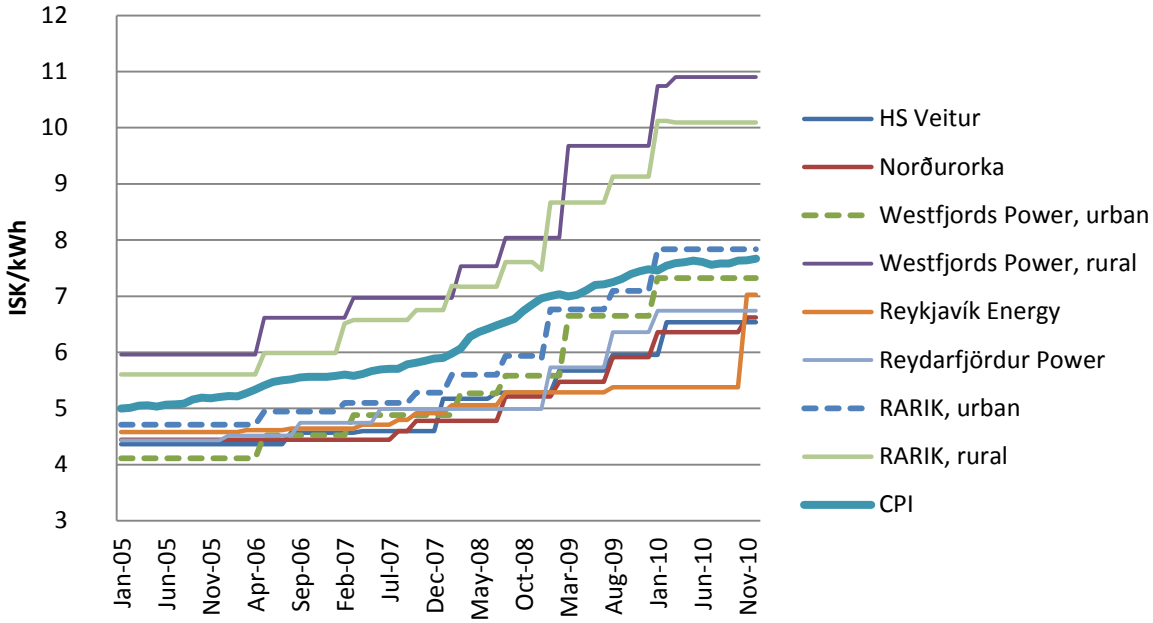

Figure 2: Distribution costs by DSO for 4500 kWh of annual consumption

The number and duration of unplanned interruptions have decreased significantly in recent years. Interruptions decreased by 62% from 2008 until 2010. The largest single interruption of 2010 occurred on May 7 and has been traced to disruptions in an aluminium smelter. Most interruptions are due to faults in cables or lines. Figure 3 shows these developments since 2001.

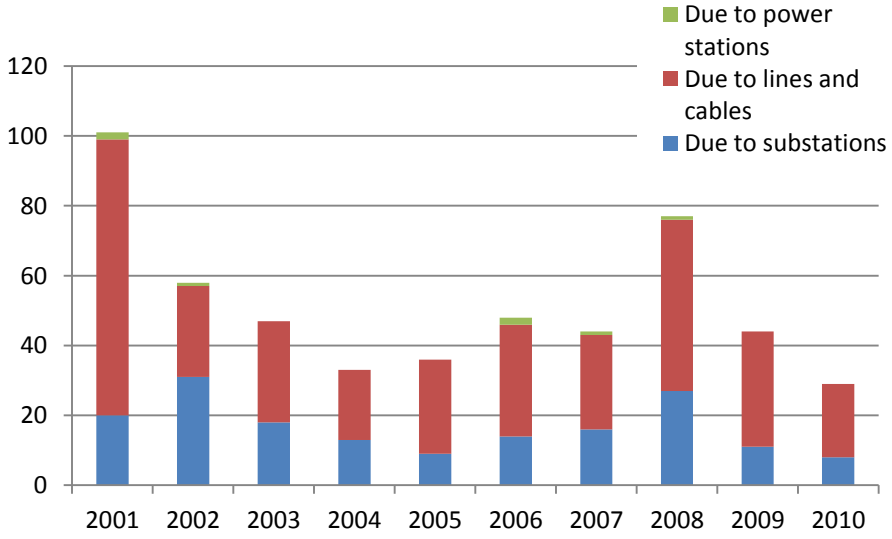

Figure 3: Number of interruptions

The System Average Interruption Duration Index (SAIDI) indicators are collected and are as follows:

SAIDI (planned and unplanned interruptions) = 0.56 hours per customer
SAIDI (planned interruptions) = 0.25 hours per customer
SAIDI (unplanned interruptions) = 0.31 hours per customer

There have been minor developments in the market model, as balancing energy minimum bids have been significantly lowered to 1 MW per hour. This was done to ease access to the balancing market for smaller producers. The average price in 2010 was 2.25 ISK/kWh. Balancing energy is produced from hydropower in Iceland. As more than 95% of all hydropower reservoirs belong to Landsvirkjun, it has been the only active member on the balancing market so far, despite the lowering of minimum bids. However, there are expectations of more parties offering their services on the balancing market in the future.

3.1.2 Effective unbundling

Prior to the adoption of the Electricity Act in 2003, there were no requirements in place regarding the separation of activities for electricity companies. Landsvirkjun was the primary producer of electricity. It also owned and operated most of the transmission system and had the exclusive right to supply electricity to power intensive industries. Other vertically integrated utilities operated distribution systems and were engaged in the sale of electricity to end users, while they were also engaged in other activities, such as small scale electricity production and the distribution of hot and cold water.

After the adoption of the Electricity Act, in 2003, the first step was the unbundling of Landsvirkjun's production and transmission activities. In 2004 Landsnet was established as Iceland's TSO through the transfer of all of Landsvirkjun's transmission assets. The company also took over all transmission assets owned by RARIK and Westfjord Power Company and the companies became shareholders in Landsnet. All of these companies are entirely under public ownership. As of January 1, 2005, Landsnet was entrusted with the transmission of electricity in accordance with Act no. 75/2004 on the Establishment of Landsnet. The TSO is now an autonomous company, with a board of directors who are independent from companies involved in distribution, production or sale of electricity. At a later stage the company also acquired transmission assets from Reykjavik Energy and Hitaveita Suðurnesja (now HS Veitur). Reykjavik Energy became a shareholder in the TSO while Hitaveita Suðurnesja decided to sell their transmission assets to the TSO.

Landsvirkjun is the major owner of the TSO, with 65% of shares. All of the TSO's shareholders are public entities. The Board of the TSO is independent from electricity market participants such as production companies, distribution companies and retail companies. The TSO is prohibited from engaging in any activities other than those which are necessary for the performance of obligations according to the Electricity Act.

The Electricity Act requires all producers to keep their accounts for the generation of electricity separate from accounts relating to other activities in their internal accounts. The Act also stipulates that DSOs engaged in activities other than the distribution of electricity shall, in their internal accounting, keep accounts for electricity distribution separate from accounts for other activities. If the same DSO is responsible for the operation of distribution systems in more than one tariff zone, the company shall, in its internal accounting, keep separate accounts for each zone.

The Electricity Act stipulates that companies engaged in the generation and sale of electricity cannot subsidise activities through their income from concessional operations conducted by the company. With Act No 58/2008, amending the Electricity Act, all vertically integrated companies serving distribution areas with more than 10,000 inhabitants are required to unbundle

distribution from other activities, as of 1 January 2014. Furthermore the board of directors of legally unbundled DSOs shall be independent of other companies engaging in the generation, transmission or sale of electricity.

It should be noted that Iceland's largest DSO, Reykjavik Energy, has fewer than 100,000 connected customers. In December of 2010, Reykjavik Energy applied for a third extension of permission to remain bundled. All DSOs beside Reykjavik Energy have started the legal and functional unbundling process. The company had assumed high levels of foreign debt prior to Iceland's economic collapse which increased significantly when the krona's value depreciated against other currencies. The legal unbundling of Reykjavik Energy therefore requires the close cooperation of foreign creditors.

3.2 Competition Issues

3.2.1 Description of the wholesale market

There was no power exchange or special facility for the wholesale electricity market in 2010. All major producers enter bilateral agreements with power intensive users and sales companies operating in the retail market.

Total electricity sales to power intensive industries were 13,209 GWh in 2010, the majority of which is used by the aluminium sector. Electricity contracts for power intensive users are long-term, or frequently of 20 years duration or more, with an option to renew. Furthermore, the electricity sales price stipulated in such contracts usually incorporates the output of the business in question, e.g., the price of aluminium. This results in power producers sharing in the risk/reward of the output market in question. The contracts are frequently structured on a "take-or-pay" basis.

It should be noted that energy prices for power intensive industries are not publicly available but all power contracts with power intensive industry, since the entry into force of the EEA Agreement, have been reported to the EFTA Surveillance Authority. ESA has concluded that the contracts are in line with the market investor principle and do not involve state aid. The fee for transmission to power intensive industries is determined by a tariff specific to such users. These bilateral contracts are fairly independent of activities in the wholesale market.

Three companies were known to be on the wholesale market in 2010. There were no mergers or acquisitions in the sector in 2010 and no effective changes in market concentration.

Landsvirkjun places bids to retail suppliers for the public but does not engage in the retail market itself. Landsvirkjun, as the dominant producer, is considered the price setting firm in the wholesale market. Price competition is believed to be active in the wholesale sector.

As access to the electricity market is based on the post-stamp system, there is no reason to suspect any discrimination in the market. However, initial cost of connection to the transmission system may vary between locations.

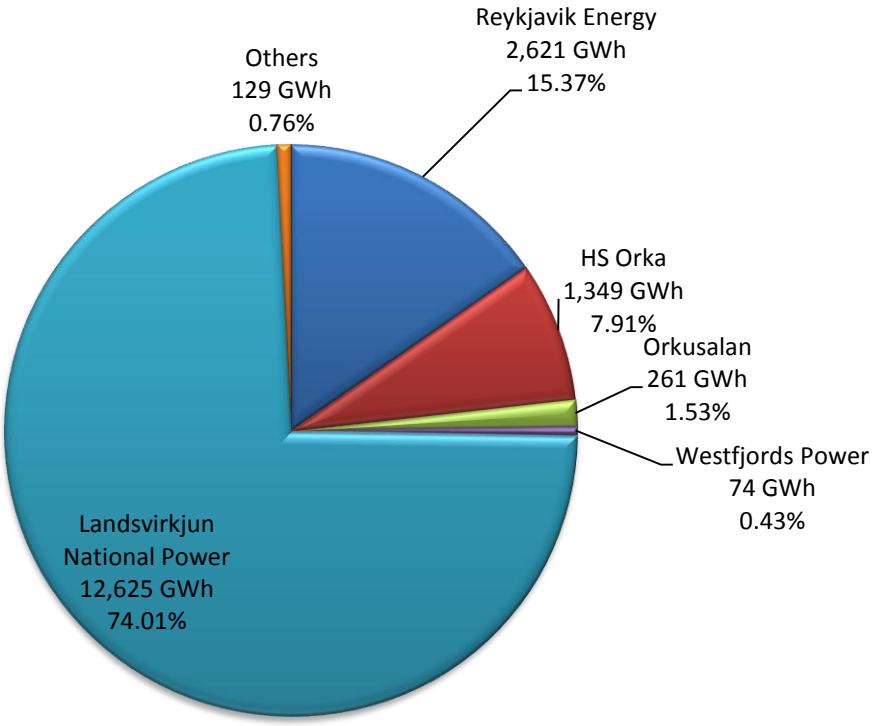

Figure 4: Production by generator and share of total production

3.2.2 Description of the retail market

As stated earlier, competition has been introduced in the supply of electricity. Six companies compete on the market and according to the interim provision no. IV, all parties are entitled to select the electricity supplier of their choice, effective as of 1 January 2006. Customers can therefore choose their supplier, free of charge; however the termination of services shall be made in accordance with Article 9 of Regulation No. 1050/2004, i.e. with at least 30 days notice. The NEA also posts on its website general information and guidance for customers on the electricity market, such as electricity prices, how to switch to a new supplier as well as giving guidance on how to proceed with a complaint.

In addition to the regulatory monitoring of the NEA, the Competition Act also applies to business activities subject to the Electricity Act. The Competition Authority is responsible for the enforcement of the Competition Act, the object of which is to promote effective competition in business activities. The Competition Authority is charged with the task of achieving the objectives of the Competition Act by preventing unreasonable barriers and restrictions on freedom in business operations and preventing harmful oligopoly and competition restrictions. The supervisory work of the Competition Authority extends to all forms of business activity, regardless of whether such activity is conducted by individuals, companies, public entities or other parties.

There are six retail supply companies Reykjavik Energy, HS Orka hf., Fallorka, Orkusalan ehf., Westfjords Power Company (Orkubú Vestfjarða), and Reydarfjord Electric Supply Company (Rafveita Reyðafjarðar). Three of these retail suppliers are very small and have a limited amount of customers outside of the areas they were designated to operate in prior to liberalisation. Reydarfjord Electric Supply Company and Westfjord Power Company limited their retail customers to these areas in 2010, although the latter has since started supplying to customers in other locations.

The sales companies (departments) advertise an indicative price for domestic and mid-scale users. The price of electricity for domestic use, inclusive of distribution services, is in the range ISK/kWh 14.93 to 15.26 for urban areas and ISK/kWh 20.75 to 21.09 for rural areas for 4,000 kWh of annual consumption.

The NEA, in co-operation with the Consumer Agency, operates an online calculator to help households and small-scale users find the supplier with the lowest price. The calculator can be found at http://www.os.is/raforkuverd

Switching takes place on the first of the following month. Hence, the waiting period for switching is at minimum one month, but a maximum of two months. There is no charge for switching supplier. No known difficulties have been encountered by customers in switching a supplier. When competition was first introduced, the sales companies with the highest prices decreased their rates close to the lowest market price. This situation has remained and there is little difference between the rates of suppliers.

	2009			2010		
	Households	I&C customers	Total	Households	I&C customers	Total
No. of switches	290	927	1217	501	591	1092
No. of customers	139940	39981	179921	140665	39698	180363
Percentage of switchers (%)	0.21	2.32	0.68	0.36	1.49	0.61

Figure 5: Customer switching by households and/or industrial or commercial customers

The duration of contracts for general users is usually two years or less. A large portion of electricity supplied by retailers is bought from Landsvirkjun which dominates the market. The minimal price difference between retailers results in a fairly dormant market. Customers who fail to choose a supplier within 4 weeks of moving to a new location are meant to be charged a 50% surcharge by the supplier of last resort. The NEA suspects that this rule is not exercised as it should be and may have a negative effect on competition.

The cost of distribution services for industrial and commercial companies has developed in a very similar way. Although information on public tariffs of sales companies to midscale industries has been published, the NEA has not compiled data on discount levels received by larger companies. Prices of supply for large industries users (100 GWh or more) are not available, although transmission prices are public.

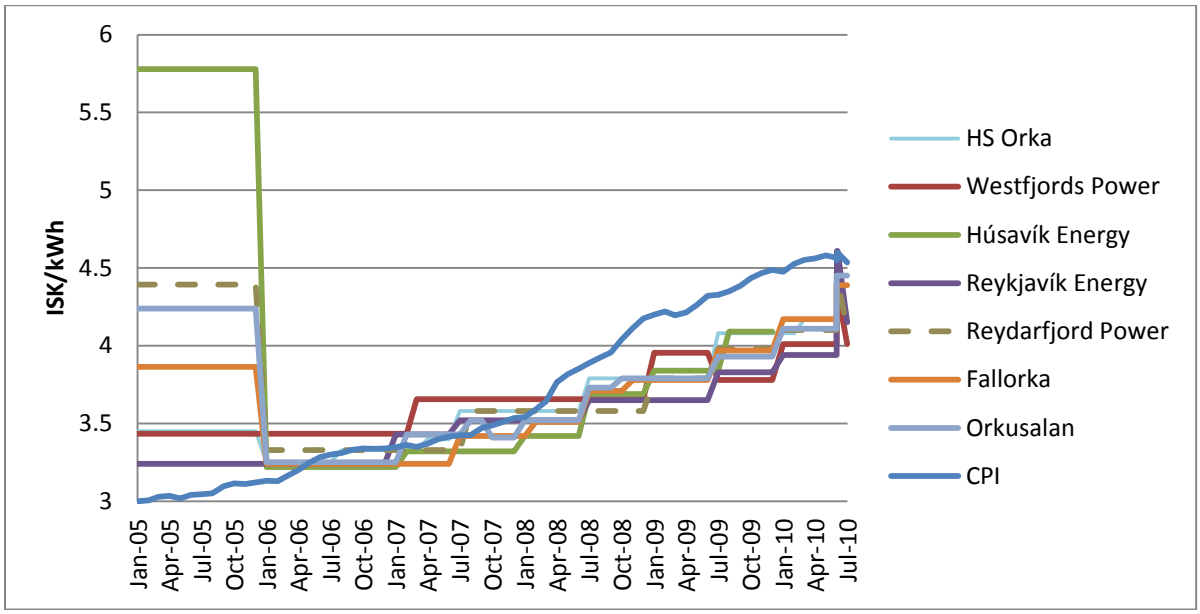

Figure 6: Supply price for households 2005-2010 for 4500 kWh of use (excluding VAT)

3.2.3 Measures to avoid abuses of dominance

Market surveillance is the responsibility of The Competition Authority, although in cooperation with the NEA when applicable.

Landsvirkjun, the dominant electricity producer, is required to publish the price of wholesale electricity. There were no indications market power abuse with respect to bid formation and potential withholding of technically available capacity.

Traders buy electricity according to fixed agreements for one to twelve years. In most cases the electricity suppliers have their own production capacity but some portion of their electricity supplied is purchased from Landsvirkjun or other producers.

Regulation 1050/2004 stipulates that a standardized contract shall be the basis for the purchase of electricity between the consumer and the supplier. Any deviations from such contracts shall be in writing. Contracts between energy intensive users and suppliers shall always be in writing. Termination of contracts shall also be in writing. The structure of contracts is neither stipulated in the Electricity Act nor the derived regulations. The NEA is currently aware that contracts are not actually always in writing, and a change in Regulation 1050/2004 which will take effect in 2012 stipulates that electronic contracts suffice. The NEA is currently reviewing the structure and execution of contracts and will cooperate with the Competition Authority on this subject.

4. Regulation and Performance of the Natural Gas market

There is a single natural gas pipeline which has been used in Iceland since 2008. It delivers methane produced from the Reykjavík municipal landfill to a filling station for automobiles ten km away. Three km of the pipeline are under the ocean. The pipeline's capacity is 5 million Nm^3 per annum, although it is still only using a fraction of its capacity. It transported 370,000 Nm^3 in 2008, 427,000 Nm^3 in 2009 and 567,000 Nm^3 in 2010.

There are no other plans for the expansion of natural gas usage in Iceland and the gas directive has not been implemented. The NEA does not monitor its operation. The landfill gas production is owned by the municipal waste company in Reykjavík, Sorpa. The pipeline is owned by Reykjavik Energy and the filling station is operated by N1.

5. Security of Supply

Currently, there is no significant shortage of available electricity and the long-term generation potential of economically viable renewable energy sources are more than adequate to meet the demand levels of the general public. A very small fraction of electricity customers rely on imported fuels. There are no connections to other markets although the technical capacity to connect to the European mainland does certainly exist. There are some transmission congestion issues that are localised to specific areas on the grid, but the major concerns of the European common electricity market such as interconnectivity, reliance on imported fuels and decreasing the levels of greenhouse gas emissions do not apply to the Icelandic electricity sector.

The TSO is responsible for the secure management of the electricity system and shall ensure the security and quality of electricity delivery. Such system management includes, inter alia:

- Co-ordinating the supply and demand of electricity so that discrepancies between contracted purchases and actual consumption can be met, and entering into contracts with producers in connection therewith
- Ensuring the adequate supply of spinning reserves as required for the operation of the system
- determine system load profiles where power measurements are not conducted
- Measuring the delivery of electricity into and out of the transmission system in accordance with the applicable government regulation, documenting measurements and submitting records to the parties in question for the purpose of enabling financial settlement in relation to trade in electricity
- Supplying public authorities, customers and the public with the information necessary to assess whether the company is meeting its obligations and to ensure non-discrimination in the trade of electricity.

The TSO is required to ensure the availability of a forecast on the projected demand for electricity and a plan for the development of the transmission system. The Energy Forecast Committee, which is a cooperation forum for the key ministries, agencies, companies and associations in the field of energy operated since 1976, issues a forecast every year for the expected increase in electricity consumption.

	Electricity production	Peak demand
Year	GWh	MW
2010	17,210	2,192
2011	17,552	2,212
2012	17,595	2,218
2013	17,830	2,249
2014	18,399	2,318
2015	18,469	2,330

Figure 7: Electricity production forecast for 2010 - 2015

In 2010 98% of all electricity was produced by renewable sources, 74% by hydro and 26% by geothermal. Landsvirkjun produces 74% of the total, but the three largest companies produce 97% of the total production. The increase in electricity production in 2010 was 367 GWh, which constitutes 2.2% increase in electricity production. The total electricity consumption was 16177 GWh in 2010.

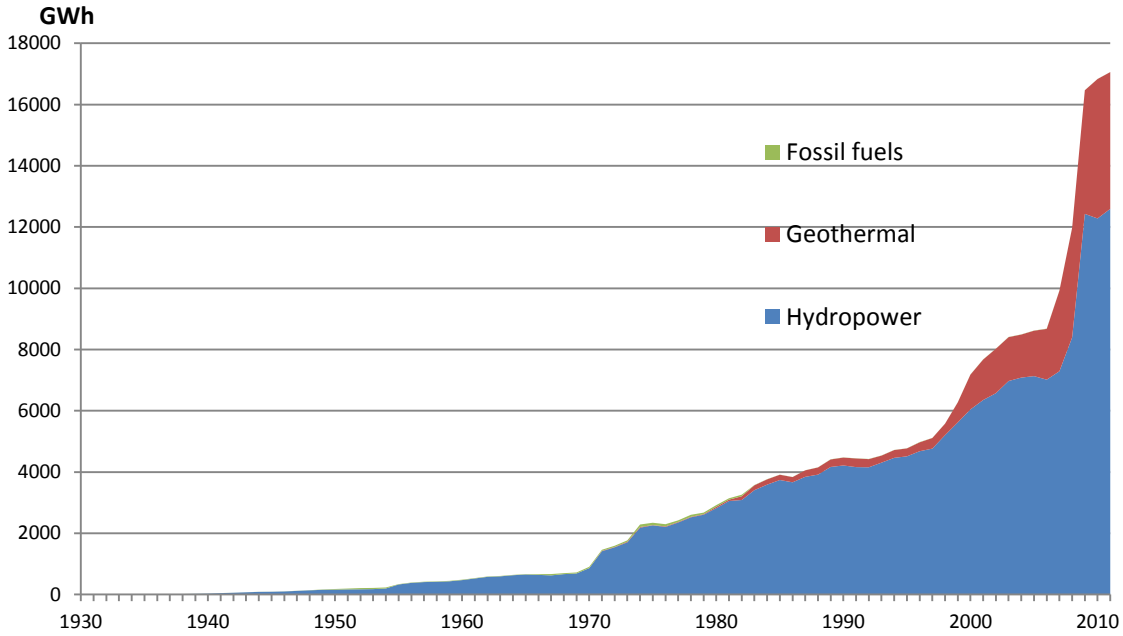

Figure 8: Electricity production by source 1930-2010

Several places with low populations are dependent on electricity generated from imported fuel, but import issues have not caused any electricity supply disruptions in the last 25 years. The highest risk factor to the import of fuel to these islands may be pack ice. Several areas are vulnerable to transmission disturbances because they are dependent on a single transmission line. The largest town supplied through a single transmission line has a population of 2,500 people.

The maximum estimated production capacity is 19,250 GWh, which indicates reserves of 14% for the year 2010. The, the maximum peak load for 2010 of 2,181 MW occurred on December 21st.

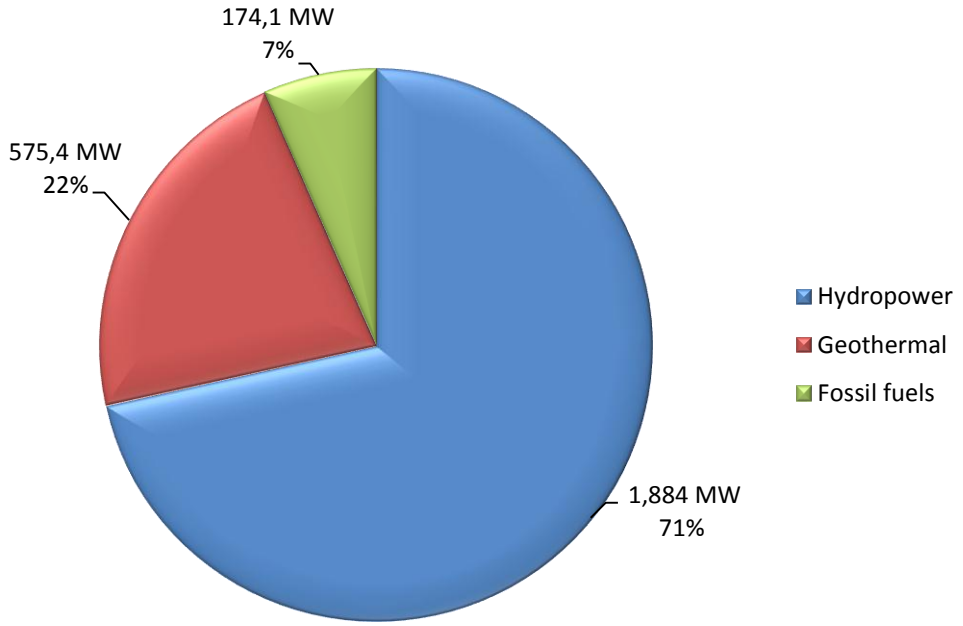

Figure 9: Installed capacity at year-end 2010

At the end of 2010 installed capacity in power stations was 2,583 MW. The increase in installed capacity in 2010 was 4 MW, which is a 0.16% increase in installed capacity. .

According to Landsnet's report on the electricity balance[4] for the next 3 years, the likelihood of an electricity shortage is very low, or 1/10000. This calculation assumes that curtailable load is disconnected. The electricity balance report has not been updated since last the national report to ESA.

Regulation 1048/2004, on the Quality of Voltage and Security of Supply, with later amendments, is enacted on the grounds of Article 28 of the Electricity Act. The regulation stipulates the task of the regulator regarding monitoring of the voltage quality and security of supply according to which the companies shall report annually the results to the regulator. According to the regulation the companies should set themselves certain goals in improving their security of supply. Regarding the quality of voltage, the companies shall fulfil the ÍST EN 50160:1999 standard on voltage characteristic of electricity supplied by public distribution systems.

A license is required for the construction and operation of a power plant with 1 MW or more of installed capacity or less if the plant is connected to the distribution grid. The general conditions for such a license are designed to promote an adequate supply of electricity, security, reliability and efficiency of the electricity supply system and the utilisation of renewable energy sources. The conditions are set out in Regulation no. 1040/2005 and apply for all power plants that require a license. The regulation stipulates that licenses can only be issued for power plants that utilise renewable energy sources. The dominant electricity generator is Landsvirkjun, which is owned by the Icelandic State. Two other companies, Reykjavik Energy and HS Orka, also have significant electricity production, while there are also a number of companies with small levels of generation capacity, including small private hydro power producers.

The TSO produces a five year investment plan for the transmission system which is presented to the NEA for their comments and consent. There are no legal provisions pertaining to the NEA's authority to alter the plan, although the NEA issues licenses for individual projects based on merit, economic effectiveness and the approval of other relevant authorities. No projects were delayed or cancelled in 2010.

In the event of force majeure preventing the supply of electricity from meeting demand, the TSO shall ration electricity to distribution system operators and end users. Rationing shall be non-discriminatory and based on objective criteria to be further specified in a government regulation.

[4] Orkujöfnuður 2011 og aljöfnuður 2011/2012 fyrir Ísland, September 2008; Landsnet-08128

6. Public Service Issues

According to Act no. 62/2005 on the Icelandic Consumer Agency, Article 2, the Agency shall supervise the execution of all acts that regard surveillance on invidious business methods and transparency of the market. Article 27 of the Electricity Act stipulates that the Icelandic Competition Authority is obligated to supervise the industry which operates according to the Act.

The NEA is obligated to supervise certain general aspects of consumer protection, regarding the profitability of the electricity system and general tariffs, according to the Electricity Act no. 65/2003.
The status on measures taken to fulfil universal service and public service obligations, including consumer protection are, among others, as follows:

There is no labelling scheme to identify primary energy sources of Icelandic electricity. There are no provisions regarding the implementation of Article 3(6) of the Directive. Recital 25 of the Directive states that the Commission has indicated its intention to take initiatives especially as regards the scope of the labelling provision and notably on the manner in which the information on the environmental impact in terms of, at least, emissions of CO_2 and the radioactive waste, resulting from electricity production from different energy sources, could be made available in a transparent, easily accessible and comparable manner throughout the European Union and on the manner in which the measures taken in the Member States to control the accuracy of the information provided by suppliers could be streamlined.

According to paragraph 4 of Article 7 of Regulation No. 1050/2004 all exchanges in electricity between a customer and a supplier shall be based on a standard contract. Such contract shall be applicable to all new customers. Paragraph 4 of Article 7 includes strict rules on the dismissal of the aforementioned agreements. Paragraph 7 of Article 7 it is reaffirmed that a customer and a supplier shall both sign a contract on the electricity exchange; although the NEA is aware that signed agreements are, in fact, rare. Customers can complain to the NEA in case of alleged discrimination, if they consider tariffs unjust or wrongfully applied (Articles 24, 25, 26 and 30 of the Electricity Act).

Supplier of last resort is neither defined in the Electricity Act nor regulations derived from the Act. In Article 44 of Regulation No. 1050/2004, on Exchanges in Electricity and Metering, the procedure for electricity disconnection is described, e.g. time limit prior to disconnection. Some companies extend the stipulated time limit prior to disconnection for vulnerable consumers to give them time to seek consult or assistance from their local welfare services.

In 2010 the total number of the DSOs customers was 181,163. The total number of disconnections in 2010 was 5,794, mainly due to non-payment. 3.2% of customers were therefore disconnected, provided each customer was only disconnected once.

There is no social tariff scheme in Iceland and fuel poverty is not a prevalent social issue. In cases where low-income individuals are unable to pay for electricity or heating, their local social services may be in direct contact with the supplier to pay the bill as determined on a case by case basis. There are, however, three subsidy schemes that apply to the end-users of electricity. The total amounts for each scheme are determined by Parliament and administered by the NEA.

There is a direct financial transfer to DSOs providing electricity to homes without access to geothermal district heating. The subsidy is designed to equalise the cost of heating and encourage the development of rural areas (heavily populated areas have most often developed around geothermal resources in Iceland). The subsidy is paid directly to the DSO who then bills according to the subsidised price. There were about 37,000 residents living with subsidised electric heating in 2010.

The cost of distributing energy in rural areas is high due to scarce population and difficult terrain. Distribution costs are subsidised to residents who are designated as rural users according to Regulation no. 1040/2005. The amount of the 2010 subsidy was from 0.55 ISK/kWh up to 0.93 ISK/kWh depending on the region.The subsidy is paid directly to the retailer who then bills according to the subsidised price.

The last subsidy scheme applies to greenhouse operators and is administered entirely by the Ministry of Industry,

Annex A: Organisation chart of the National Energy Authority in Iceland