Annual Report 2017

LANDSNET

STATEMENTS

Sigrún Björk Jakobsdóttir Chairman of the Board:

„We placed an increased emphasis on communication and consultation with stakeholders, in line with a review of the company's policies and values, where key elements include transparency, informed discussion and consultation“

Landsnet has been working on large projects in northeast Norway in the last few years and continues to work on strengthening the transmission system in north Iceland.

We placed an increased emphasis on communication and consultation with stakeholders, in line with a review of the company's policies and values, where key elements include transparency, informed discussion and consultation.

Consultation committees are now involved in three projects, Krafla Line 3, Hólasandur Line 3 and Suðurnes Line 2. Non-landowners meet regularly at these meetings and enjoy regular, informative field trips. The initiative has created consensus and this approach helps us to learn and develop and ultimately achieve unity or compromise.

Environmental matters are important to the company and we have contributed to the debate on energy exchange. However, progress is unlikely, unless the electricity transmission system is strengthened.

I am very proud of the fact that we received recognition for the year's best environmental initiative for our smart network in eastern Iceland. This involved the development of automatic controls for the electricity supply for fish meal plants in eastern Iceland, as well as load control in aluminium smelters. A new methodology was developed and can be applied within local power systems with transmission restrictions. The project is a perfect example of the unique cooperation of employees within Landsnet who have developed smart solutions, based on creative thinking and engineering know how. The result is improved performance, improved energy utilisation and significant environmental benefits to society as a whole.

Landsnet is looking forward to the future and is ready for the road ahead - with all of you, so that we can embrace success in an electronic future - the future is now and we have never been more ready.

I would like to extend my thanks to our powerful and devoted team of employees who work with the overall interests of society as a guiding principle.

Guðmundur Ingi Ásmundsson CEO:

„Electricity transmission has increased between years and last year was no exception. An electrified future means that people will become increasingly reliant on secure electricity, bringing a number of challenges.“

The year 2017 was one of the best years in company history. We completed construction on Þeistareykir Line 1 and Krafla Line 4, both of which were large-scale projects that have been under preparation for many years. The construction project was successfully executed and the company received positive feedback on the layout of trails and structure design.

Icelandic electricity is clean, renewable energy and therefore already part of the solution to reversing climate change. Climate change matters to us, and we were thrilled to receive recognition from the Confederation of Icelandic Employers for our smart network solutions in eastern Iceland.

Landsnet completed one of the most complicated and expensive repairs they have ever encountered when the Westman Islands cable 3 failed. The situation showed us the extent of the expertise and resources we have here at Landsnet.

There are exciting new times ahead. Our entire world is changing rapidly as technological advances push us forward. Many small-scale power producers and

new users, such as the data center industry, demand speedy services and decision making and knowledge dissemination is more important than ever. We are ready for this journey and have made a concerted effort to promote communication by launching initiatives such as the establishment of consultation committees where the main stakeholders meet on a regular basis. The purpose of this communication platform is to ensure successful communication and effective knowledge dissemination, between stakeholders, in anticipation of construction project decisions made by Landsnet as well as improving the design process.

Operations this year were in line with our plans and it is satisfying to see that the work we have been involved in has led to steady operations, instead of the large fluctuations that we have previously experienced. The refinancing of long-term loans with favourable terms, the transfer to US dollars and procedure improvements has created the balanced operating environment expected. We are fully prepared to meet the challenges ahead.

The company's currency risk has been reduced and the strengthening the Krona has not significantly affected operations. This year is one of the largest construction years in company history, and construction costs were largely in line with our plans, despite major delays to larger projects. We continued to make payments on the loan from our parent company to reduce the risk of refinancing, due to maturity in 2020.

Electricity transmission has increased between years and last year was no exception. An electrified future means that people will become increasingly reliant on a secure electricity supply. Future challenges include ensuring that everyone has access to enough electricity, saving energy, and building a system that improves the utilisation of existing power plants. Landsnet has the resources to face these challenges head on.

ABOUT US

Board of Directors

"Our Board of Directors is appointed annually and has ultimate authority with regard to all Company decisions. The appointment of the Board must comply with statutory requirements on impartiality and non-discrimination. Directors must therefore be independent of the Company, shareholders or other companies engaged in the generation, distribution or sale of electricity."

The current Board of Directors consists of the following members: Sigrún Björk Jakobsdóttir, Hotel Manager at Icelandair Hotel Akureyri, Ómar Benediktsson, Managing Director/CEO of Farice and Svana Helen Björnsdóttir, Managing Director of Stika.

Reserve members include Svava Bjarnadóttir, Executive Vice President and owner of Kapituli and Jóhannes Sigurðsson, Supreme Court Attorney who left the Board at the end of 2017.

Sigrún Björk Jakobsdóttir
Chairman of the Board

Sigrún Björk Jakobsdóttir was appointed Chairman of the Board at the Annual General Meeting on the 7th of April, 2016. She has served on the Boards of various companies, organisations, institutions and committees and has extensive experience in the field of tourism and local government.

Ómar Benediktsson
Board Member

Ómar Benediktsson was first appointed to Landsnet's Board on the 29th of March, 2012. He has served on the boards of numerous companies, both domestic and foreign, as well as other organisations. He also has extensive experience in business operations, both at home and abroad.

Svana Helen Björnsdóttir
Board Member

Svana was first appointed to Landsnet's Board on the 31st of March, 2009. Svana has served on the boards of numerous companies and organisations and has extensive experience in company operations, both in Iceland and abroad.

Svava Bjarnadóttir
Board Member

Svava was elected to Landsnet's Board of Directors in June, 2018. She was previously a reserve member of the Board. Svava has also served on the boards of numerous companies and has extensive management experience.

Ólafur Rúnar Ólafsson
Board Member

Ólafur was elected to Landsnet's Board of Directors in June, 2018. He was previously a reserve member of the Board. He has extensive experience in local government matters and has worked as a lecturer at the University of Akureyri.

Landsnet's Executive Board

Landsnet's Board of Directors engages a CEO, who is responsible for the company's day-to-day operations. Landsnet's Executive Committee is composed of the CEO, the CFO and the Executive VPs.

Guðmundur Ingi Ásmundsson
CEO

Guðmundur Ingi Ásmundsson is the CEO of Landsnet. He completed a degree in electrical engineering in 1980 from the University of Iceland and a Master's degree in Electrical Engineering from the Technical University of Denmark (DTU) in 1982. Guðmundur Ingi has worked at Landsvirkjun for 23 years, initially joining the Company as an engineer. He went on to become Chief Engineer and Managing Director of the Systems Department in 1993. He served as Landsnet's System Manager from the 1st of January 2005 when the Company was founded and became VP of System Operations in November 2005. He went on to become Deputy CEO in January 2008 and President and CEO from January 2015.

Einar S. Einarsson
Corporate Services & Communications

The Service and Marketing Division works cross-divisionally and is responsible for providing services to Landsnet's clients. The division serves as the core for internal services and HR within the Company and oversees projects that support synergy, efficiency and cooperation. The division is also responsible for social responsibility matters as well as maintaining external and internal relations.

Guðlaug Sigurðardóttir
CFO and Deputy CEO

The Finance Department is responsible for Landsnet's finances, accounting, treasury management, procurement, business intelligence, revenue cap compliance, budgeting, financial modelling and risk management. The Finance division includes an Analysis unit that supports revenue and tariff analysis, the reliability of forecast models, the Company's asset management, and analysis of investment and operational decisions. The division is also responsible for asset management and specific staff facilities.

Íris Baldursdóttir
System Operations & ICT

The System Operations & ICT Division is responsible for the grid's operational security and system operations as well as maintaining a balance between power generation and consumption, coordinating plans for the disconnection of units and overseeing the response to grid disturbances. Conditions in the electricity system are subject to continual change, requiring constant system monitoring and often a rapid response. The division is also responsible for Landsnet's information systems and is at the heart of the development of smart grid solutions.

Nils Gústavsson
Executive Director

The Construction & Grid Services Division oversees all construction work within the Landsnet transmission system network. The division is also responsible for maintenance, inspection and repairs of the transmission infrastructure, including the key task of condition assessment of the grid.

Sverrir Jan Norðfjörð
Executive Director

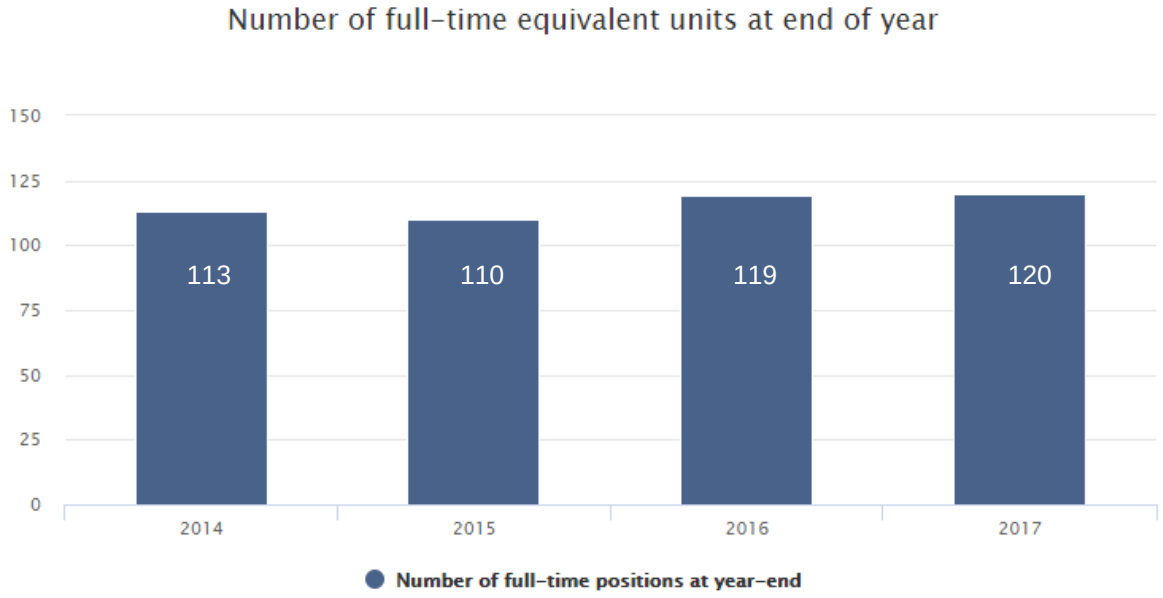
The Technology and Development Division prepares grid development plans for all Landsnet infrastructure projects and manages research, environmental impact assessments and preparatory projects necessary to make decisions on infrastructure development. Our division includes a Technical Services Unit, which prepares infrastructure works and provides cross-divisional technical services.

Landsnet‘s Organization

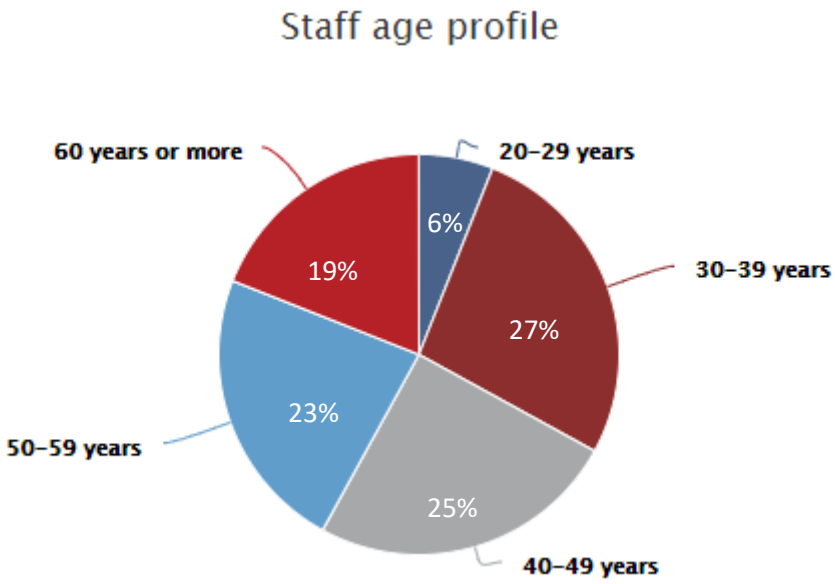
„We are a service company that works in line with society and have set ourselves the goal of ensuring safe delivery of electricity.“

Our vision is to be a responsible and progressive service company with a strong team spirit and sense of community. We must ensure that our team has the correct qualifications to take on any challenge at any given time and the confidence to handle every day and future challenges.

The number of full-time positions at year end in 2017 was 120.

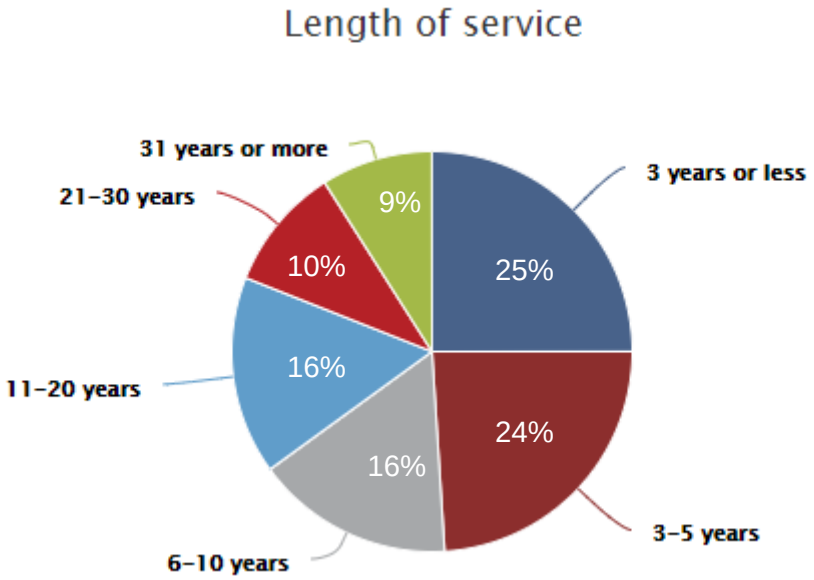


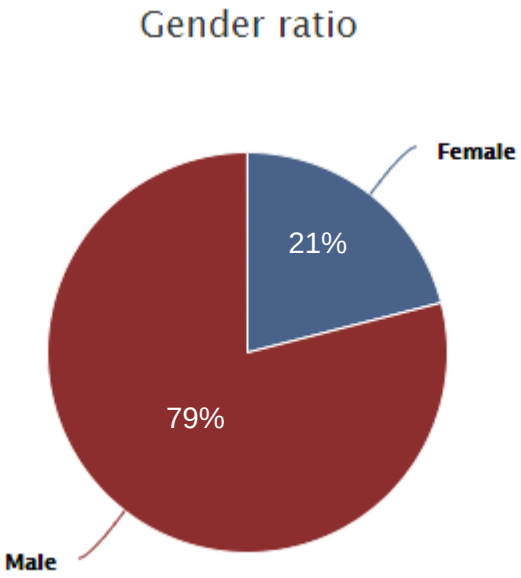
Six new employees joined our team this year and seven left the company, two of whom had reached retirement age. Many of our valued employees will soon reach retirement age and so Landsnet faces the challenging task of successfully renewing its team in the coming years.

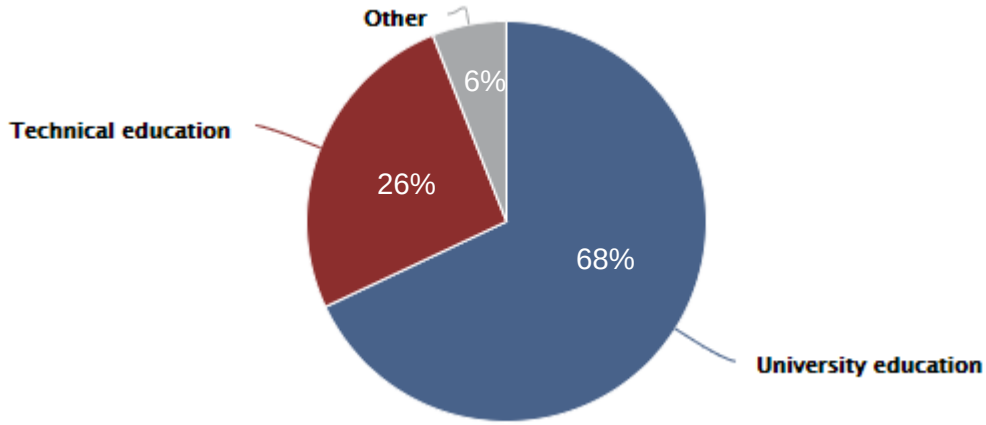


„Increasing the number of women in the energy sector is important to us“

The staff renewal rate has been high at Landsnet in the last few years as many of our team have reached retirement age. Half of Landsnet’s team now has less than six years' experience, and one quarter less than three years. A third of employees have worked for six to 20 years and one-fifth longer than 21 years.







Our team is well educated, experienced and rich in expertise. Approximately 70% of our employees have a university education, 26% have a technical education and 6% have other types of education. Most of our team are electric technicians or have a university education in engineering or technology. Other employees also have a wide range of experience and education.

„We are committed to knowledge dissemination and education“

We use a diverse range of approaches in knowledge dissemination and continuous improvement is one of our main objectives. We embarked on an ambitious plan in 2017, and were rewarded when we received an award from the SA Confederation of Icelandic Enterprise.

„We are proud to have received this recognition and consider it an incentive to do even better. Our team is exceptional and from a diverse range of educational backgrounds. We work on complex and interesting projects relating to the development, structure and operation of the electricity system. We transmit electricity every day and sometimes work under hazardous conditions. Education and training are therefore integral to successful operations. A positive work environment enables us to achieve the goals we have set for an electrified future.“

Ambitious goals were set in education and training matters this year. We conducted a needs analysis, using both staff focus groups and individual- employee interviews.

We encouraged our employees to teach in the university and technical environment. It is important for us to communicate the expertise we have acquired. This initiative has made it easier to establish partnerships with educational institutions and has given students better access to specialised education.

Regular internal training course were held this year, based on the needs analyses we carry out on a regular basis as well as a number of other courses. We consulted with our employees on relevant teaching materials and many employees participated in internal education drives.

We also encouraged our employees to seek further education in connection with their field of expertise.

Students and summer employment

„An amazing summer, diverse projects and a great workplace“

We collaborated with both the University of Iceland and Reykjavík University on practical projects and vocational programs. Students from both schools had the opportunity to work in collaboration with us on their final projects. These projects should be both practical and useful to society, the university, the student and us, and should contribute to the future. University students are offered interesting placements and to familiarise themselves with real projects within their field of study. These students help us to develop the systems we work with. We hired 14 university

students in 2017. We also hired 24 upper secondary school students who worked on a number of different projects. This initiative is part of our policy on social responsibility.

Workplace analysis

In 2017, we decided that a workplace analysis should be conducted annually to monitor human resource development. This is a detailed analysis of the strengths and challenges of the workplace, highlighting important issues for executives to work with so that they can create a motivating work environment.

Job satisfaction

In 2017, two new employees joined us at our operational base in the north of Iceland.

"Taking our pulse..."

A workplace analysis revealed that feedback to employees was not effective enough. A project was subsequently launched to change the form and content of employee interviews and to educate and train managers and staff in interview technique. Interviews are now held three times a year instead of annually. These are short and informal interviews with a set framework. They have been given the nickname "pulse interviews" because they take the pulse of employees' well-being.

Research shows that this type of interview positively impacts communication between management and employees, and expectations become much clearer. They also facilitate the follow-up of issues with shorter intervals.

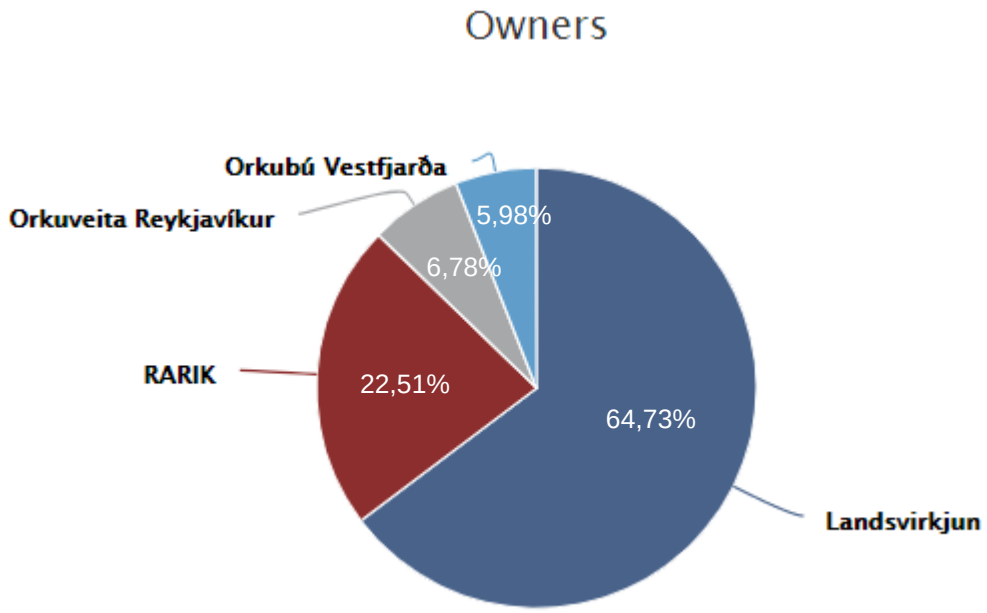
WOW Cyclothon

Ten employees took part in the Wow cyclothon this year, cycling around the country and covering a distance of 1358 km.

Owners

Landsnet is a public company owned by Landsvirkjun (the National Power Company), the State Electric Power Works RARIK, Reykjavik Energy and the Westfjord Power Company.

Landsnet was founded in 2005 and operates under a concession arrangement. The Company is subject to regulation by the National Energy Authority, which determines the revenue framework on which our tariff is based.



POLICY

An “electrified future” – in tune with society is at the core of our future vision. Modern society is increasingly dependent on electricity and Landsnet is committed to ensuring a secure supply of electricity in the future and maintaining a balance between generation and consumption.

We are a responsible and progressive service company with a powerful team spirit and high level of community awareness. We strive to be at the forefront of the global energy industry.

Role

Secure, uninterruptible electricity is one of the pillars of modern society and our role is to ensure the cost-efficient development and operation of the grid and a secure and uninterrupted electricity supply at any given time, within the electricity system.

Our future vision

An electrified future, in line with society, is a key principle at the core of our future vision. Modern societies are increasingly reliant on the secure supply of electricity. We are committed to ensuring the secure supply of electricity for the future and to maintaining a balance between generation and consumption.

We want to achieve a broad consensus in our future endeavours, are committed to considering the needs of society at any given time and to showing responsibility in environmental matters. We are also committed to promoting a healthy market environment within the electricity market and to the efficient use of funds.

Values

Our values are responsibility, cooperation and respect and we incorporate these principles, both internally and externally. They shape our corporate culture, approach and behaviour, supporting professionalism and effective decision-making.

Policy pledges

Our policy is based on six key pledges to society. These include the secure supply of electricity, a high quality service and secure transmission system for the future, operations in harmony with society and the environment, efficient operations, informed debate, and targeted management and organisation. Our promises include:

Secure electricity supply- a high-quality and secure transmission system for the future

We are committed to ensuring nation-wide access to electricity at any given time and in the quantity and of the quality required. Future priorities are identified and defined as well as the criteria for reliability, security and quality. We are invested in achieving a broad consensus on the prerequisites required for construction and investment.

In harmony with society and the environment

Social consensus plays an important part in defining the role and focus of the Company as well as promoting an understanding that the electricity grid is in fact a fundamental part of our modern infrastructure. We actively work towards achieving consensus with regard to Company operations and on creating awareness on our vital role within society. Corporate social responsibility is therefore an intrinsic part of Company policy. We are proactive in engaging in continuous dialogue with stakeholders, characterised by honesty, responsibility, open-mindedness, mutual respect and a willingness to cooperate. Any potential, negative impact on the environment is minimised during the development and operation of the transmission system.

Efficient use of funds- effective operations

The strengthening of the grid and the elimination of any bottlenecks supports a healthy investment environment for energy market participants and also reduces electricity ‘waste’ within the sector. This requires a ‘cradle to the grave’ approach in investment and operational decisions including the consideration of macroeconomic interests. We use the funds entrusted to us wisely and prudently and make cost-

effective and efficient decisions with regard to the development and operation of our transmission systems.

Clear image

We strive to build an image affiliated with professionalism, trust and social responsibility and are dedicated to creating a cutting-edge, progressive company, unafraid of exploring diverse paths and solutions. We believe that knowledge dissemination should be detailed, easily understood, honest and transparent.

Strategic management and organisation

Landsnet's organisational structure supports the role, policy and main operations of the Company in a clear and purposeful manner and creates the foundation required to fulfil our promises to both our customers and society as a whole. We believe in maintaining a simple and effective structure with clear principles, well defined roles and a holistic and comprehensive approach to process assessment. We also place an emphasis on continuous improvement in order to simplify and increase the effectiveness and overall efficiency of processes. We use structured practices and procedures with a focus on continuous improvement in compliance with international management standards and applicable legal and other related requirements.

Positive work environment

We care for every employee and inspire them to take on new challenges and offer a professional and ambitious working environment. We are committed to creating a positive work environment where our work culture is characterised by our Company values, and staff are given the opportunity to progress and thrive. We are service minded and caring for the needs of customers, employees, society and the environment is an integral part of our operations. We are committed to health protection, personal and operational safety and in promoting an environment where employees have a common vision of the values, purpose and role of Landsnet.

OPERATIONS & CONSTRUCTION

„Landsnet believes that climate issues go hand in hand with electricity issues. We support new technology and competitive trade that are the prerequisites for the competitiveness of renewable energy.“

Development of the transmission system

The development of the transmission system should go hand in hand with future developments within the electricity market, maintaining the safety, reliability and efficiency of the electricity transmission system. Investments in the transmission system are inherently long-term and the potential development of the market is therefore an important factor in the future design of the system.

Landsnet develops a transmissions systems plan (TSP) on an annual basis, in accordance with the provisions of the Electricity Act. The purpose of the TSP is to outline plans for the main transmission system over a ten year period, together with information on projects carried out over the next three years. However, the National Energy Authority did not approve the TSP for the period 2016-2025 and this plan was therefore not issued in 2017.

The National Energy Authority rejected the transmission systems plan for 2016-2025 last September. The plan is the most comprehensive so far and is the result of extensive consultation on key issues. The decision to refuse the plan was mainly based on the description provided for individual projects within the three-year plan. The National Energy Authority subsequently issued a statement that the TSP for 2015-2024 was still in force and that these projects were approved by the Authority. Landsnet and the National Energy Authority have worked to resolve these issues with the aim of ensuring that the approval process for the next transmission systems plan will be more successful.

Considerable work was carried out during the year in systems analyses, especially in connection with proposed underground cable projects. Research in this area is becoming increasingly prominent. Regional systems analyses were also carried out for the Suðurnes, West Fjords, Northeast of Iceland and the capital area. Systems analyses on preparatory projects have also been extensive and are an important part of the preparation process. Efforts to develop methods to assess the extent of bird impact and overhead electricity lines continued. An experimental project was launched to investigate thermal formation and heat resistance in the soil surrounding underground cables.

Preparation for investment projects

A variety of investment projects were developed during the year including cost analyses, planning, an environmental impact assessment and project design. The scope of preparation for each project varies considerably and the preparation time can be anything from several months to several years.

Twenty five preparation projects were worked on in 2017 and seven of these were completed. These included changes to the substation in Fljótsdalur, a new substation in Öræfum, a new connection by Sauðárkrókur, the connection of the Hvammur Power Station and alterations to the connection with the aluminium smelter in Straumsvík.

Consultation

"The projects launched in 2017, in connection with consultation, have been successful and our initiative to increase the importance of this issue has attracted positive attention."

In 2017, we placed more of an emphasis on the importance of consultation and communication with society as a whole. The company's policies and values have been revised in line with changing attitudes in society over the last few years. Key elements to this review included transparency, informed discussion and interactive communication and consultation.

A new position was created and filled for a communication coordinator whose responsibilities include the management and development of methods for consultation. The current focus is on larger regional projects, but the long-term plan aims to introduce a diverse range of consultation measures in most divisions within the company.

A project committee or consultative forum was formed for the Krafla Line 3, Hólasandur Line 3 and Suðurnes Line 2 projects where the main stakeholders (not including landowners) meet on a regular basis. The committee work has been successful and regular meetings have been held. Field trips have been organised and a good atmosphere and spirit has been maintained throughout. Landsnet is pleased that it took the initiative in creating this forum for open, honest discussion characterised by broadmindedness, mutual respect and a willingness to cooperate.

Meetings have been held with landowners in connection with the above-mentioned projects, both locally and in the capital area. Meetings will also be held with the local residents of affected areas and any other interested parties.

A number of knowledge dissemination techniques were introduced. Landsnet‘s website offers information on each project and efforts are being made to make the website more accessible and user friendly. A number of articles have been published on individual projects and particular issues related to electricity in both local and national publications.

Consultation projects launched in 2017 have been generally successful and increased company emphasis on communication has attracted positive attention. This work will continue in 2018 and will focus on strengthening and supporting measures already in place. Plans are also underway to ensure broader consultation and consensus on our projects.

New projects and maintenance projects

Investments in new construction projects in the transmission system amounted to ISK 75 billion USD during the year which is an increase of 55% when compared with 2016. The largest projects were in Northeast Iceland, accounting for 70% of the total investment costs for the year. Preparation work for extensive new projects was also carried out during the year.

Krafla, Þeistareykir and Bakki

Construction work was carried out in Northeast Iceland on the connection of Þeistareykir Geothermal Power Station to the industrial area at Bakki at Húsavík and its connection to the transmission system. The various structures were electrified in the autumn. The projects are the most extensive in Landsnet's history and consisted of the construction of two 220 kV overhead lines: Krafla Line 4, a 33 km line from Krafla to Þeistareykir; and Þeistareykir Line 1, a 29 km line from Þeistareykir to Bakki; as well as three new 220 kV substations at Þeistareykir, Bakki and Krafla.

Reinforcement of the transmission system in Snæfellsnes

Preparation and construction work was carried out during the year to reinforce the transmission system in Snæfellsnes as a result of regular disruptions experienced in the area in recent years. Work on the new 66 kV, 26 km underground cable between Grundarfjörður and Ólafsvík began during the summer and is expected to reach

completion in 2018. Construction work on the new substation in Grundarfjörður was completed during the year and plans for a new station in Ólafsvík (in 2018) are being assessed.

Connection to the expansion at Búrfell

Alterations were made to the current substation at Búrfell as a result of the connection of the new 100 MW. Búrfell Hydropower Station to the transmission system. The connection is expected to become live in the summer of 2018.

Underground cable in the Dýrafjörður Tunnel

Landsnet will lay a new underground cable in the Dýrafjörður Tunnel which will replace a part of the connection to the Breiðadalur Line 1, which has been problematic with regard to maintenance and repairs. The connection will increase the security of the transmission system in the Vestfjörður area. Work began on the tunnel in the summer of 2017 and the cable will be laid in the beginning of 2020.

Changes to the transmission system in the Reykjavík area

Landsnet has been praparing changes to the transmission system in the Reykjavík area for some time in connection with regional development plans. Plans include the disconnection of Hamranes Lines 1 and 2 from Geithals to Hamranes and Ísallína 1 and 2 from Hamranes to the aluminium smelter in Straumsvík. Plans to replace these lines include two new 220 kV lines, Lyklafell Line 1 from the proposed new substation by Lyklafell and up to Straumsvík and Ísallína Line 3 from the substation by Hamranes and up to Straumsvík. Design and licencing work was carried out during the year as well as tender preparation for both lines and a substation. Construction is expected to begin in 2018.

Krafla Line 3

Preparation work for Krafla Line 3 has been underway for some time. The line will increase the stability of the power system in the north and east of Iceland by improving the connections between these parts of the country, thus increasing the safety of the electricity supply and the quality of electricity. Design and licensing work was carried out during the year and an environmental impact assessment was

completed and assessed by the National Planning Agency just before the end of 2017. Construction is expected to start in 2018.

New connection to Sauðárkrókur

Design and licencing work was carried out during the year as well as tender preparation for the new 66 kV, 24 km, underground cable connection between Varmahlíð and Sauðárkrókur. The substation in Varmahlíð will be altered and a new station will be constructed in Sauðárkrókur in an area further away from the residential area. Sauðárkrókur is currently connected to the transmission system via one 40 year old line. The new connection will more than double the transmission capacity in the area and will also improve the security of supply. Construction is expected to start in 2018.

Substation in Hvolsvöllur

Tenders were released for the construction of a new substation in Hvolsvöllur during the year. Landsnet did not receive any bids for the construction of the substation and construction has therefore been delayed. The new substation will replace the older substation built in 1957.

Pull-through conduit in the Norðfjarðar Tunnel

A pull-through conduit was laid in connection with the proposed underground cable at the Norðfjarðar Tunnel, between Eskifjörður and Norðfjörður, during the year.

Voltage increase to the Westman Islands

The final part of the project for the voltage increase of the Westman Islands Cable 3 (from 33 kV to 66 kV) was completed during the year when the new substation in the Westman Islands was electrified. The cable experienced disruptions in April resulting in extensive repair work that was completed in June.

A failure occurred in Westman Islands cable 3 on the 4th of April, 2017. The failure was located underwater at a depth of 6.2 km from the Westman Islands. Subsequently, the most extensive repair project that Landsnet has undertaken began. The company was contacted by Jan De Nul and asked to handle the sub-sea cable repair. The company's cable ship, Isaac Newton, arrived in the Westman Islands on the 6th of June. The repair was completed on the 17th of June and the cable resumed normal operations the same day.

Reinforcement of the substations in Mjólká

A new 132/66 kV transformer and associated switching equipment was installed and taken into use at the substation in Mjólká at the beginning of 2017. This will improve the transmission capacity and security of supply in the Vestfjörður area.

Operation, Maintenance, Response and Emergency Services, Network services

Landsnet's now has three network services bases in Reykjavík, Egilsstaðir and Akureyri. The Net Services had 29 employees at year-end. Two new employees will join the division in the first quarter of 2018.

The operating year was heavily influenced by long-term construction projects in Northeast Iceland, in Krafla, Þeistareykir, Bakki and in Búrfell. Network services were also involved in most other construction projects this year.

Main projects during the year included the re-conditioning of equipment in Mjólká and nearby substations. There were also a number of general maintenance projects in connection with the re-conditioning or repair of older equipment.

There were some untimely power outages and power failures that needed immediate attention. The VM3 cable to Westman Islands failed and the repairs took ten weeks to complete. Lightning damage in Suðurnes caused an outage in SN1 for 20 to 40 minutes in the entire Suðurnes area and parts of Hafnarfjorður and Garðabæ. There were 40 other power outages, mostly caused by weather conditions, lightning and other factors. There were 40 power outages at substations which were mostly due to equipment failure.

Changes were made to the organisation of network services in the autumn period and this work will continue next year.

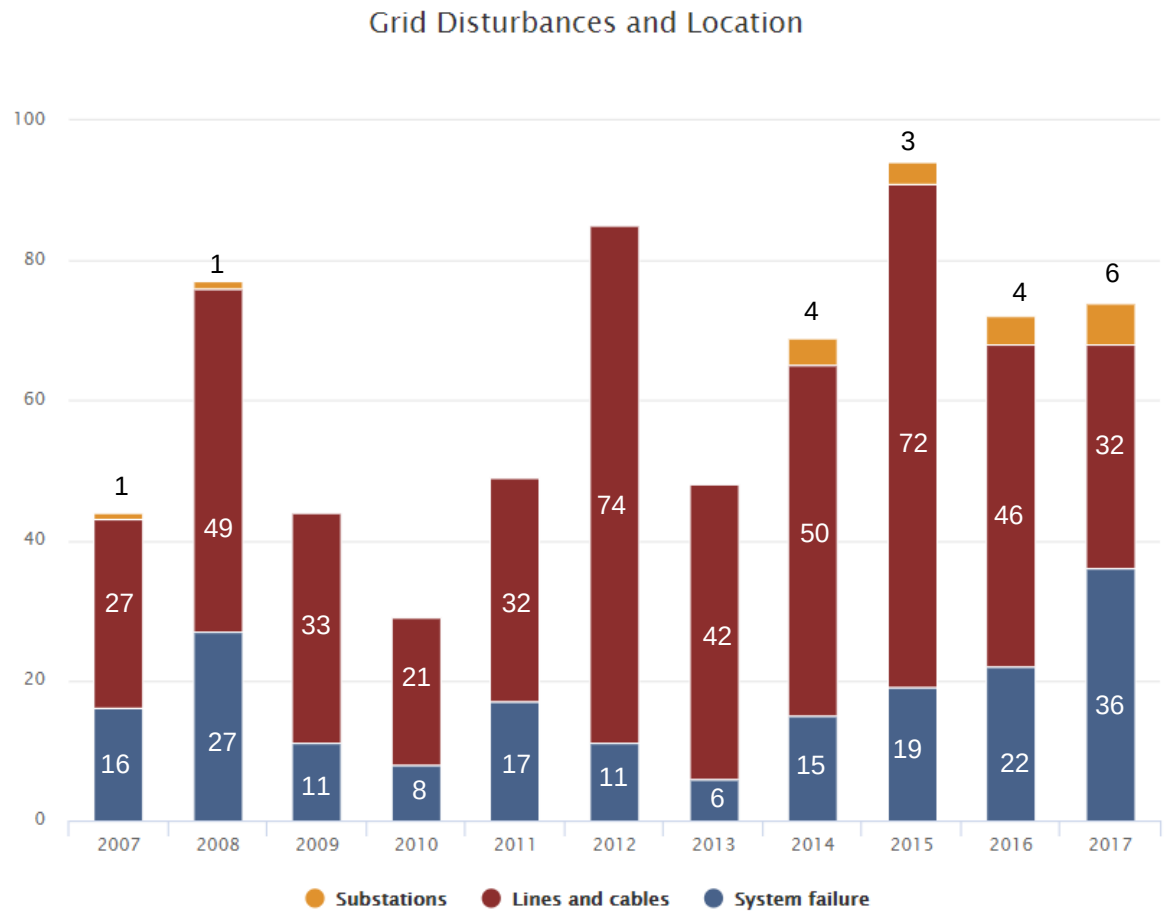
The Construction & Grid Services Division and Network services have worked in cooperation with six university and electrical engineering students during the last few summers, giving them the opportunity to familiarise themselves with operations.

The division has also overseen Landsnet's summer initiative. Twenty seven summer employees carried out various projects in the areas surrounding substations and buildings, as well as other smaller projects.

Transmission system operations

Transmission system operations were often difficult in 2017. There were no long-term power failures in the transmission system this year as a result of weather conditions or faults but repairs to the sub-sea cable to Westman Islands caused serious interruptions for a period of 73 days. Unforeseen functions in security systems and human error caused some of the largest interruptions of the year, along with interruptions in the system of energy-intensive users, which in some cases had a significant impact on the transmission system. Interruptions and failures increased between years and power curtailments to energy delivered to priority users (due to unprecedented interruptions) rose significantly between years, or from 170 MWh to 1,495 MWh. Calculated power failure went from five minutes in 2016 to 43 minutes in 2017.

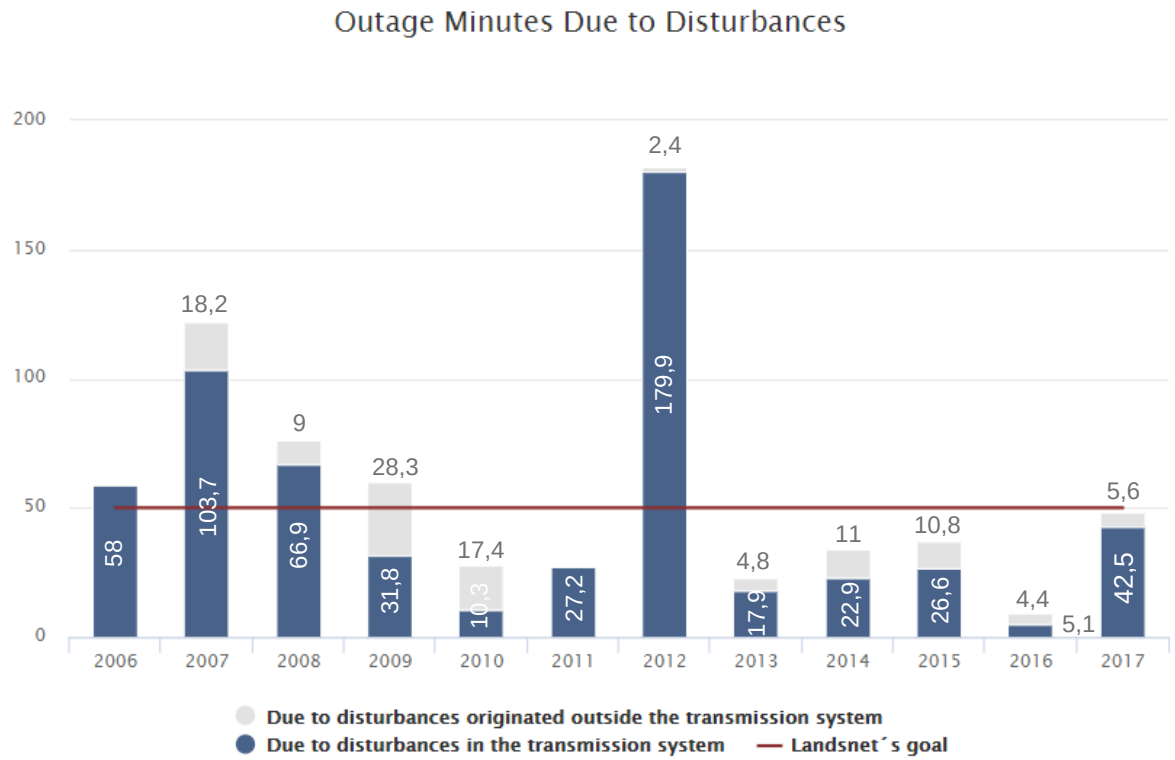
Energy delivery to customers on curtailable electricity was well above average over the last five years, including the long-term failure of the Westman Islands Line as the main reason for this increase.



Operational disturbances in the transmission system

Calculations on 'outage minutes' due to grid disturbances have been used to measure the reliability of the Icelandic grid since 1987. Our objective is to keep the number of outage minutes experienced by priority consumers (firm users) below 50 per year. We reached our goal this year and outage minutes were 42.5.

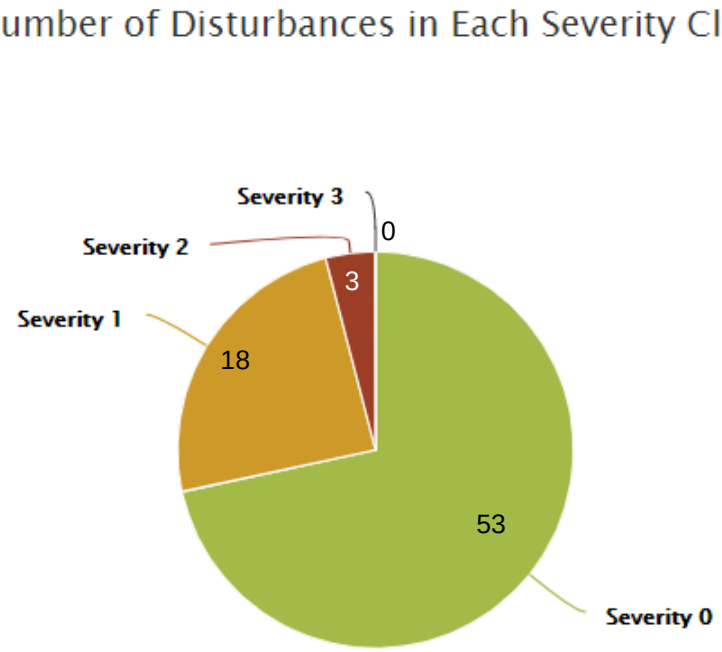
The total number of unforeseen grid disturbances increased to 74 in 2017. There were five more faults between years, bringing the total to 89 in 2017.



Curtailments to curtailable load consumers (non-firm users) are not included in the calculated power outage and are therefore not included in this graph.

The reduction of energy delivered to consumers, due to unforeseen grid disturbances was therefore 1,495 MWh and the calculated power outage was approx. 42.5 minutes, or the highest recorded level since 2012.

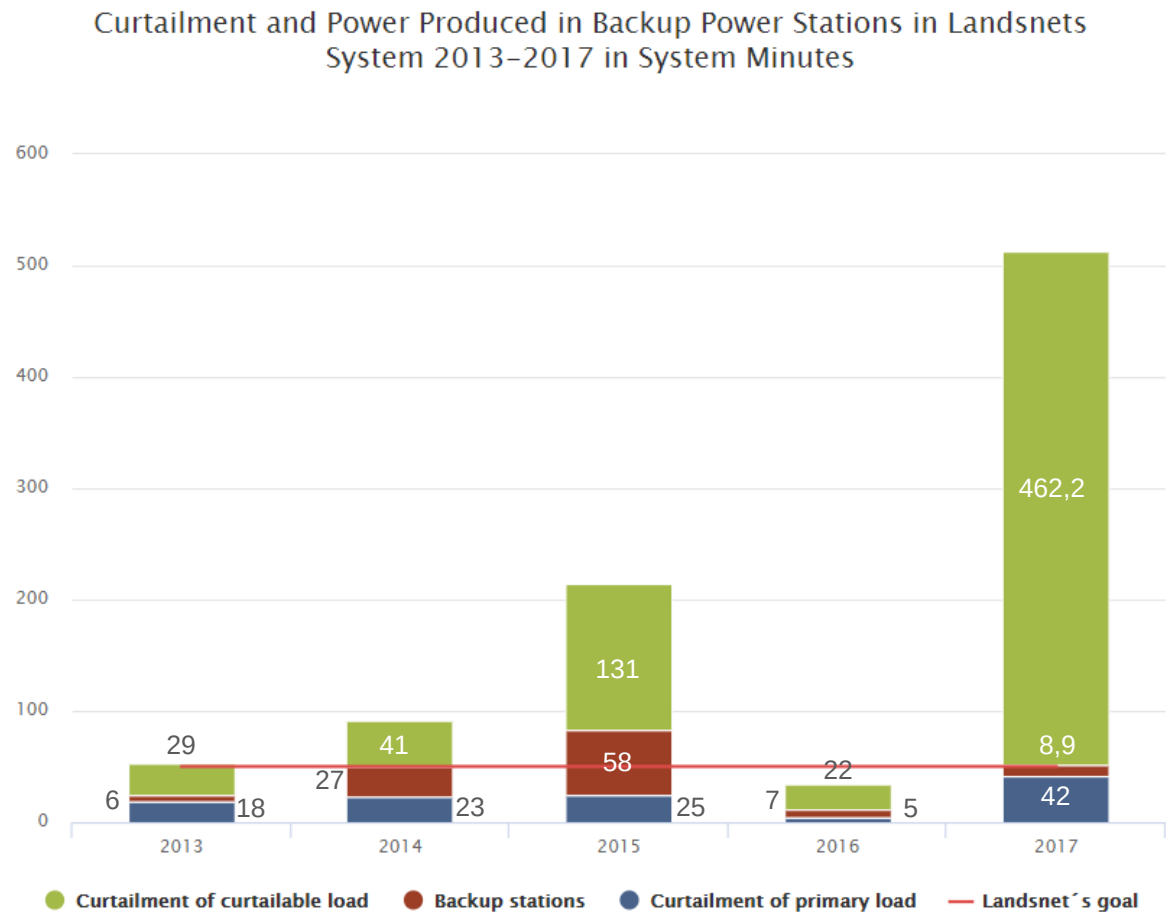
However, the outage minutes for priority consumers (firm users) does not provide an accurate overview of the reliability of the grid as the volume of reserve power used during disturbances and curtailments to curtailable load consumers (non-firm users) also need to be taken into account.



Unforeseen grid disturbances are classified according to severity and the colour indicates the severity level of each event or incident. An overview of the main disturbances that caused a reduction in the supply of electricity to customers can be found in the Performance Report 2017.

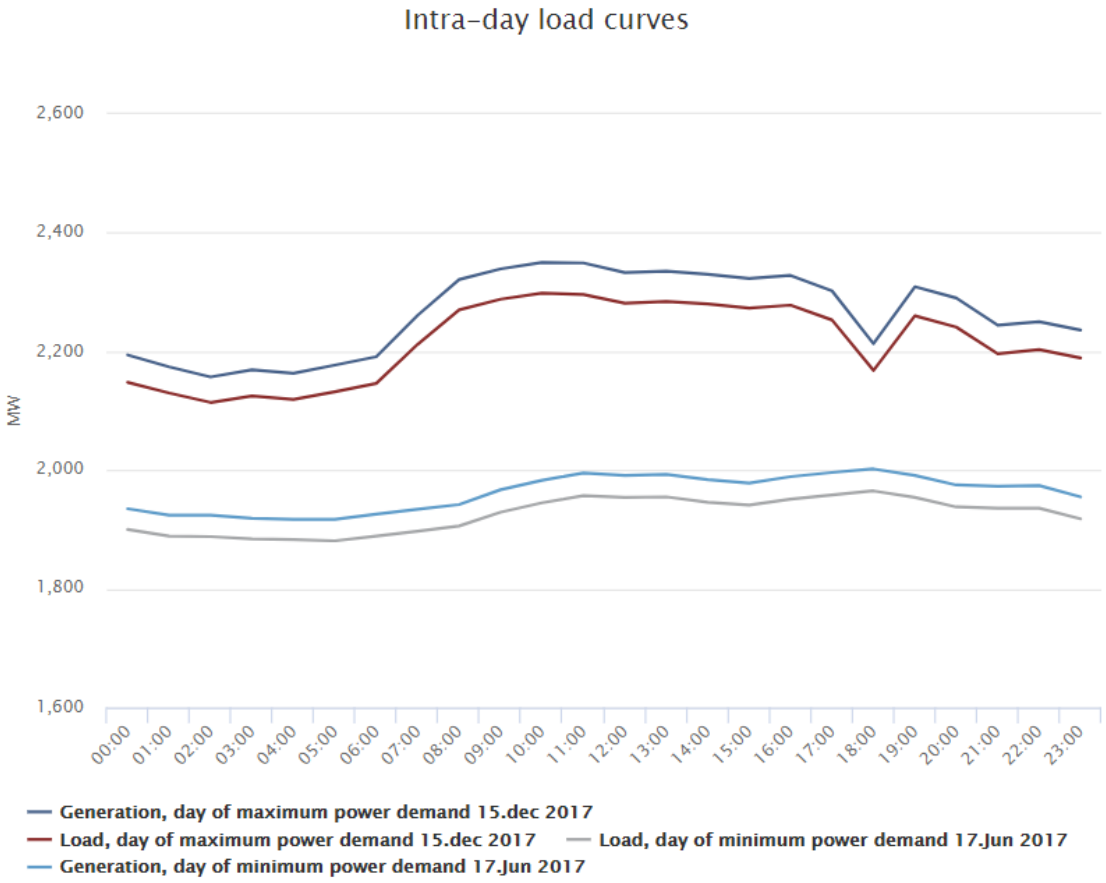
Security of supply

Increased strain on the transmission system and the rise in grid interruptions has resulted in the use of back-up energy and curtailments to non-firm users. However, smart grid solutions and rapid response times have minimised or eliminated absolute outage to priority consumers and helped to achieve last year's goal on the security of delivery, despite a large number of interruptions. The number of outage minutes for 2017 would be much higher (519 minutes) instead of 42.5 minutes, without access to a back-up power supply and curtailment measures to non-firm users.



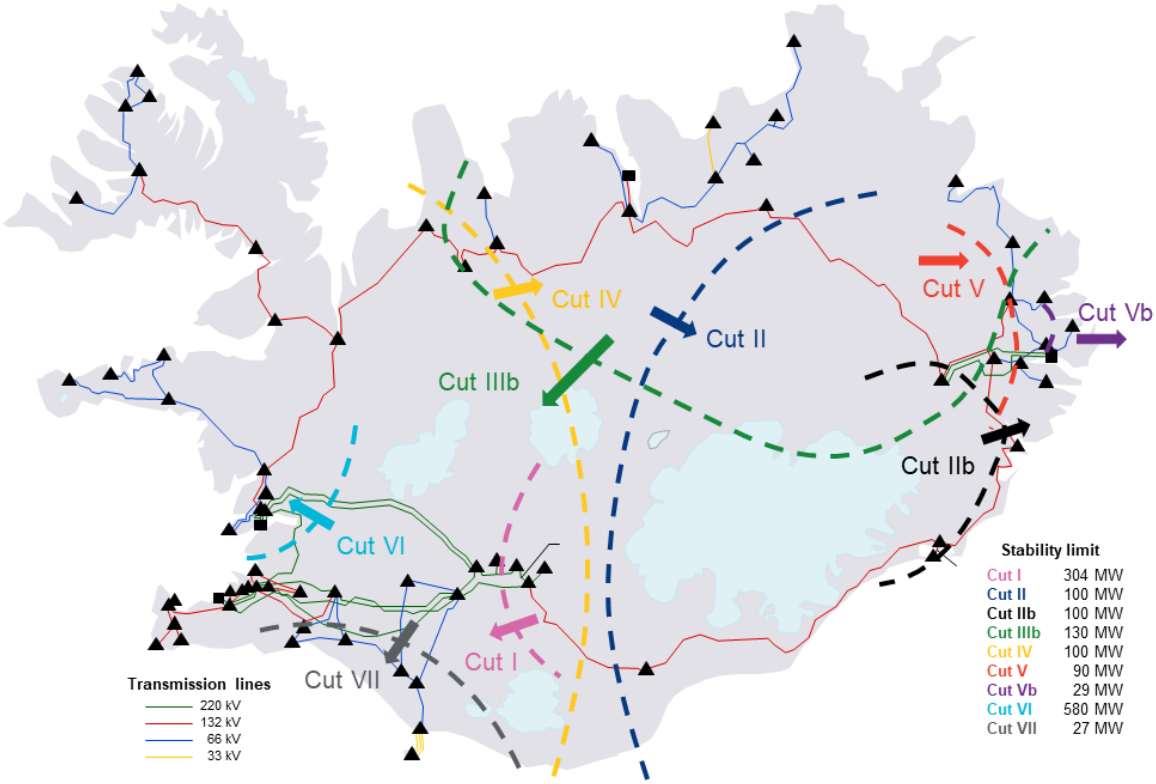
Peak Load

The highest peak in power fed into the transmission system was recorded on the 15th of December, reaching 2,350 MW, which is 2.57% higher than in the previous year. The total system demand in 2017 was 18.1 TWh, or a total increase of 4.2% between years. Transmission losses totalled 373 GWh or 2.02% of the total generation.



Exceeding security limits

We continuously monitor transmissions via defined transmission cuts or bottlenecks in the grid (see map) to minimise the impact of disturbances without compromising the transmission capacity.



Defined transmission cuts and security limits

Grid disturbances increase the risk of an outage when the level of transmission through a cut nears or exceeds security limits (80%). The figure below shows that grid operation exceeded the security limits for a large part of the year 2016. Landsnet's Control Centre must require generators to change their generation plans under these circumstances, i.e. issue dispatch instructions, and sometimes enforce prolonged curtailments in certain regions. This is problematic for all those connected to the grid.

Mitigation measures

Our Control Centre is technologically advanced in energy management and grid operation matters. Our team is specifically trained to assess grid performance and operational risks in accordance with the correct procedures.

Future smart grid solutions were assessed this year as these could ensure the rapid curtailment of load for non-firm users. They could also improve the regional load balance through the load management of aluminium plants and other industrial loads

and control the splitting of the grid into separate components during disturbances to ensure operational security.

Communication routes were redefined according to their level of importance and equipment was updated to meet increased management and security requirements.

Extensive work was also carried out on preparation measures for projects beginning in 2017. These include a smart grid in the south of Iceland (in connection with the voltage increase to the Westman Islands), a smart grid in Reykjanes, load management for an energy intensive user in the southwest and the upgrade of smart grid equipment in east Iceland in connection with the European research project Migrate.

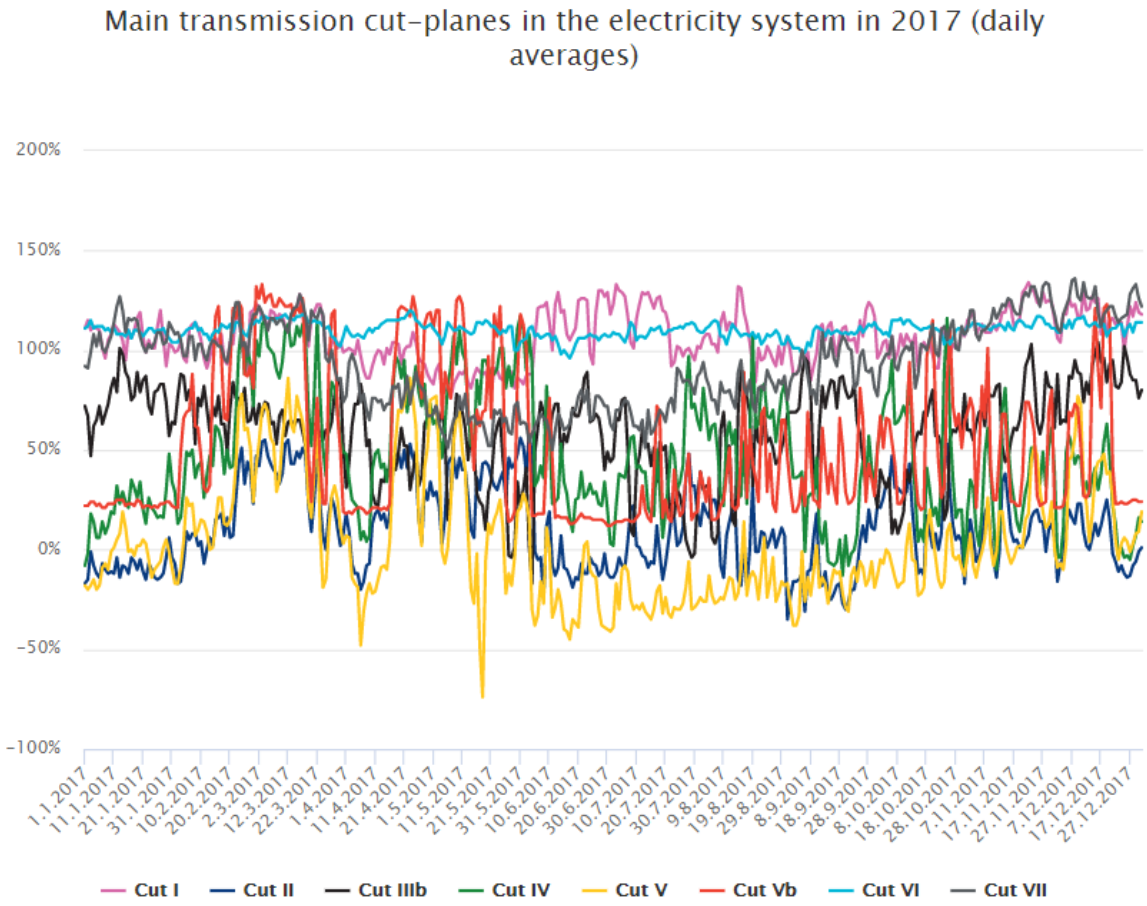
Preparations are also underway for ‘fast control’ in connection with the control of generating units during disturbances, as well as continuous weather monitoring and prevention measures in cooperation with our customers. This will ensure targeted responses designed to minimise the impact of weather related disturbances.

Strengthening the transmission system

A significant increase in the use of backup power during grid interruptions and curtailment measures (non-firm users) shows that the transmission system is widely overloaded.

The security of the grid would be well below the criteria generally used to assess the reliability of transmission systems without readily available access to back-up energy and the aforementioned curtailment measures.

The grid provides the whole of Iceland with electricity and its infrastructure must be strengthened to continue the provision of this vital service. Smart grid solutions and the increased use of reserve power are temporary solutions which do not solve the grid’s capacity problems or ensure its long-term reliability.



IT and telecommunications

IT and telecommunications are an increasingly important factor in Landsnet's operations and the transmission system as a whole. We updated key systems, improved telecommunications, safety and security and brought new energy management system terminals into service.

Software system for the regulating power market

The development of a new software system for the regulating power market was completed in 2017 and the system was subsequently made operational. The system manages tenders and bids and sends control values to Landsnet's Energy Management System to maintain balance in the electricity system. The project was tendered out in the European Economic Area and was awarded to the software company Kolibri.

Security and telecommunications

Landsnet is committed to ensuring the security of its software and IT systems, which are integral to the transmission system's operational security. Specifications were outlined for information security for control equipment at our substations. All new control equipment must now fulfil these requirements. A course was held for experts in IT and control and defence equipment on security matters in connection with energy management systems and control equipment.

The development of the Orkufjarskipti electronic communications system continued during the year. Þeistareykir and Bakka were connected by fiber optic cable to the Orkufjarskipti telecommunications network. A fibre optic cable was laid from Blanda into the substation in Hrútatunga.

Landsnet´s Energy Management System (EMS)

The energy management system terminal in Hamranes was renewed this year and the control equipment in the new substations at Bakki, Þeistareykir, Krafla, Grundarfjörður and the Westmann Islands was connected to the system. The control equipment at the substations in Hrauneyjafoss and Búrfell was also renewed and is connected to the energy management system.

A contract was signed with General Electric in France to upgrade Landsnet's energy management system. The project began in June, 2017 and is expected to reach completion by August of 2018. The computer equipment and operating systems will be cutting edge. The PhasorPoint System will be used in the upgraded energy management system. Various other new features will be available in the updated system. The system can now be connected to energy management systems at other energy companies enabling the exchange of information in real time.

Research and innovation

GARPUR

"Our contribution is assessing the reliability of the system in real time."

Landsnet has been an active participant in the GARPUR (Generally Accepted Reliability Principle with Uncertainty Modelling and through Probabilistic Risk Assessment) European research project. The aim of the project is to maintain “power system performance at a desired level, while minimising the socio-economic costs of keeping the power system at that performance level.” The four-year project received an ISK 1.2 billion grant from the EU’s 7th Framework Programme for Research in 2013 and is designed to speed-up the development of electricity systems in Europe and therefore support the increased implementation of renewable energy sources.

The second part of the project focuses on the testing of a new methodology with the participation of European TSOs, under Landsnet’s leadership. Landsnet’s work on assessing the reliability of the system in real-time is progressing well. The assessment is detailed as testing must be as close to the system’s real-time management as possible, involving large quantities of data on reliability, customer costs due to electricity shortages and real-time weather data.

GARPUR’s key objective is to revolutionise the prevailing methodology in grid reliability calculations and develop new and more effective indicators to enable European TSOs to better deal with the substantial changes that have taken place in the development and operation of electricity systems in Europe and work on their further development. http://www.garpur-project.eu/

Migrate

Landsnet is also involved in another European research project, MIGRATE, which is sponsored by the Horizon 2020 Research Fund of the European Union. The total funding for the project is approx. 2 billion ISK over a period of four years. Eleven transport companies, two manufacturers and eleven universities are participating in the project as well as a number of subcontractors. The purpose of the project is to develop methodologies and technological innovation to increase operational safety, flexibility and capacity in Europe's electricity systems that support renewable energy sources.

Safety, environmental and quality matters

We have a zero-injury approach, the key objective of which is to ensure that all our staff and others working on our projects return safe and sound to their homes after each day's work. A strong safety ethic has been established with Landsnet employees.

We are one of the few companies in Iceland with a safety management system based on the international safety standard OHSAS 18001.

The standard is a requirement for safety and work environment management and requires companies to operate according to the standard, continually working on reforms and therefore making them more likely to succeed.

The OHSAS standard should among other things ensure that safety in the work environment is an integral part of the assessment and decision-making process for business investments, construction, operation, selection of contractors and purchase of goods and services. The same security requirements are outlined for all our contractors and service providers.

Results 2017

One lost-time injury event occurred at Landsnet in 2017 and two lost-time injury events (contractors) occurred during construction and investment projects. All of the accidents were minor, including one finger injury, one fall and one drilling injury.

Our staff training takes into account the risk factors to which employees are exposed to. Employee performance can largely be attributed to targeted training and extensive knowledge which creates a a good team spirit. We spent 941 hours on safety training

Helstu verkefni á sviði öryggismála

Various new projects were undertaken during the year aimed at supporting employee safety. The training plan is based on risk assessments and employee risk exposure. A new procedure was adopted for the safe preparation of projects and construction, using LEAN methodology.

Courses were also held to support and create a safety culture within the organisation. Safety culture is a culture of learning and we attach great importance to reporting and detailing hazardous incidents and situations to managers and responsible parties so that the company can implement the appropriate reforms.

Network security issues are an important security component of Landsnet's operational security. We participated in organising a joint network security exercise "Black Screen 2017", which was held in Oslo on the 1st and 2nd of November, 2017. Ninety participants from all of the Nordic countries participated in the exercise, of which 12 were from Iceland.

We provided project management and a written report for the Ministry of Industries and Innovation in accordance with "Aðgerð 17", the government‘s civil protection and security matters policy 2015-2017. The requirements for the sufficient supply of electricity to enable important infrastructure to function in times of emergency is assessed.

Scope

The evaluation of ‘readiness’ to ensure the safety of the electricity system and the preparation of a response plan for disturbances and the prolonged interruption of electricity distribution:

- Definition of minimum requirements for the safety and function of electrical structures.
- Development of a plan for the protection of power plants, substations, masts and distribution systems against sabotage.
- Review and continued development of emergency cooperation for the electricity system.

Landsnet Emergency Management

Landsnet has an emergency management (LEM) team. The main tasks of the year included the implementation of a new structure in accordance with the SÁBF Emergency Management System with the aim of coordinating emergency management procedures, with civil protection work procedures. Landsnet is responsible for the operation of the main electricity transmission system and the safety of the system is important for the operation of the entire country. Landsnet works in close co-operation with all other Icelandic energy companies on emergency responses and response plans and participates in regular emergency exercises.

Electricity services- emergency cooperation (NSR)

We lead the way in collaborating with other organisations on situations where power shortages, power failures or disasters could arise. Iceland could be paralysed by such events and the impact on the national economy could be significant. Response processes must therefore be clearly defined and utilised by organisations that produce, transmit and distribute electricity as well as energy-intensive users. Clearly defined response plans ensure the correct response to serious situations.

Laws, regulations and standards provide information on how to ensure operational safety in power generation, transmission and distribution. This also applies to energy-intensive users. These parties also make agreements between themselves regarding the security of supply of electricity.

Participants in NSR include Iceland's largest power generation company, those responsible for the transmission and distribution of electricity, the National Energy Authority, Samorka, large-scale industrial corporations and the National Police Commissioner. A particular emphasis is placed on the coordination of responses in disaster situations and effective knowledge dissemination between the parties on operational security issues, as well as the coordination of response plans and consistency in the use of terminology.

The NSR established common communication channels via Workplace and telecommunications with TETRA and the SAReye‘s Disaster Management and Incident solutions. The main objective of joint, defined communication channels is to provide information on important equipment for the power system that members could lend to each other in emergency situations.

Information is also provided on main points of contact for each organisation, human resources, tools and devices that could be used in disaster situations or in the case of serious disturbances to the power system. The NSR is not an official response organisation in disaster situations and has no legal right to intervene in these situations. The NSR's purpose is to hold regular, joint emergency exercises and to provide an effective platform for knowledge dissemination and any requested assistance.

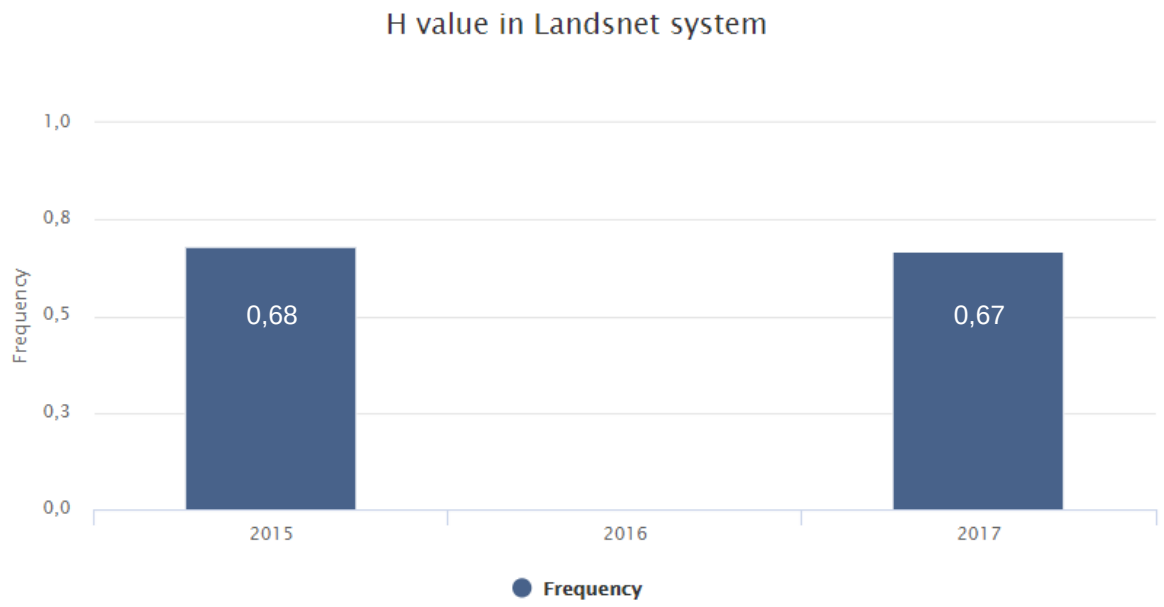
The contingency planning and crisis management forum for Nordic TSO’s (NordBER)

Landsnet collaborates with the other Nordic countries on the security of energy systems, responses to serious disturbances to the power system and mutual

assistance in disaster situations. Cooperation has grown in recent years, not least due to serious incidents in the member countries' electricity transmission systems.

The aim of the NordBER organisation is to enhance stakeholder knowledge regarding organisation, preparedness and the implementation of emergency responses in the electricity system as well as coordinating responses in disaster situations.

The member states take on the responsibilities of the presidency in NordBER for two years at a time. The Danish National Energy Authority is currently responsible for the role and has placed great emphasis on strengthening cooperation.



Quality management

We are committed to professional and safe operations and the company complies with international management standards in its operations. Landsnet has a certified quality management system in accordance with the ISO 9001 International Standard. Landsnet‘s integrated and certified management system covers quality management, environmental and electrical safety workplace safety. The coordination of the management of these issues results in better integrated work processes and more effective management of the company.

Quality Policy

Our quality policy emphasises company goals that serve the interests of Icelandic society. Electricity is one of the pillars of the economy and a part of everyday life. It is important that Icelanders have safe access to electricity. An important part of operations is the rapid response to service failures or emergency situations. Continuous reform and follow-up measures cover all areas of operation and comply with international management standards and requirements and the legal and social expectations related to the business. Efforts are being made to reduce operational risks and confidence in the company has increased. Landsnet's communication approach is characterised by the company's values of responsibility, respect and cooperation. The same requirements are made to all our contractors and service providers with regard to environmental matters.

Certification

The quality system is certified by independent parties and the system is audited twice a year.

ISO 9001 certification demands continuous improvement, as well as developing and implementing systems to improve customer satisfaction by meeting their requirements. The standard is designed to ensure that improvements are made in all projects and operations, and that contractors follow the same standard.

Companies with ISO 14001 certification need to constantly work on reforming important environmental factors and the requirements outlined for achieving goals. The standard is designed to ensure that environmental matters are considered in all construction, operations and contractors.

Companies operating in accordance with the OHSAS 18001 standard must show continuous improvement in the safety, health and well-being of staff. The standard is designed to ensure that health and safety issues are considered in all projects, operations and that contractors follow the same standard.

Environmental matters and climate change

"Electricity is one of the main pillars of the economy and our daily lives. Icelanders need secure access to high quality electricity."

Landsnet has a certified environmental management system, in accordance with the International Standard ISO 14001. The company has an environmental policy and

has worked systematically to reduce the impact of operations, including GHG emissions and waste reduction. Environmental management includes controlling any risks to the environment as a result of our operations, the selection of contractors according to set environmental requirements, the purchase of goods and investments. All our contractors and service providers are expected to fulfil the same environmental requirements as the company. We are systematically working towards reducing environmental impact and monitoring and controlling important environmental aspects. An environmental policy was introduced during the year, which focuses on the completion of projects in harmony with the environment, monitoring carbon emissions from operations and the analysis of environmental events.

GHG emissions and waste production are monitored in a structured way and the company has set objectives and a criterion for monitoring the development of emissions and waste production. We assess the success of these objectives on an annual basis. Landsnet is in a group of 103 Icelandic companies that committed themselves to setting targets and subsequent actions for climate change in 2015. The initiative was inspired by the 21st UN Conference on Climate Change

The company is committed to reducing the visibility of transmission structures. Particular attention has been paid to the design of new substations and their surroundings and minimising the visibility of these structures by ensuring that they blend in with the environment as much as possible. Overhead lines have a greater visual impact than underground cables as they can be visible from a distance of 5km. The visibility of these structures also depends on the surrounding landscape. Underground cables also have a visual impact, although to a lesser extent, as the construction process causes disturbance to the environment. The dismantling of overhead lines does not create much disturbance to the environment and the landscape can almost be returned to its initial state. The removal of underground cables obviously causes a similar amount of disruption as the installation process as it involves digging the cable up. The same applies to maintenance and repair projects.

The assessment of the environmental impact of a project involves evaluating the likely impact of certain projects on the environment and providing the relevant information. The effects are analysed, their scope assessed and suggestions are made on appropriate responses to them. The law requires that building permits be issued on the basis of the outcome of the relevant environmental impact assessment (EIA). Environmental audits are conducted after construction projects have been completed and assess the project‘s compliance with the EIA and whether improvements are needed.

No environmental incidents

No serious environmental incidents occurred during the year. Environmental issues are included in all tender documents and investment projects, and audits are carried

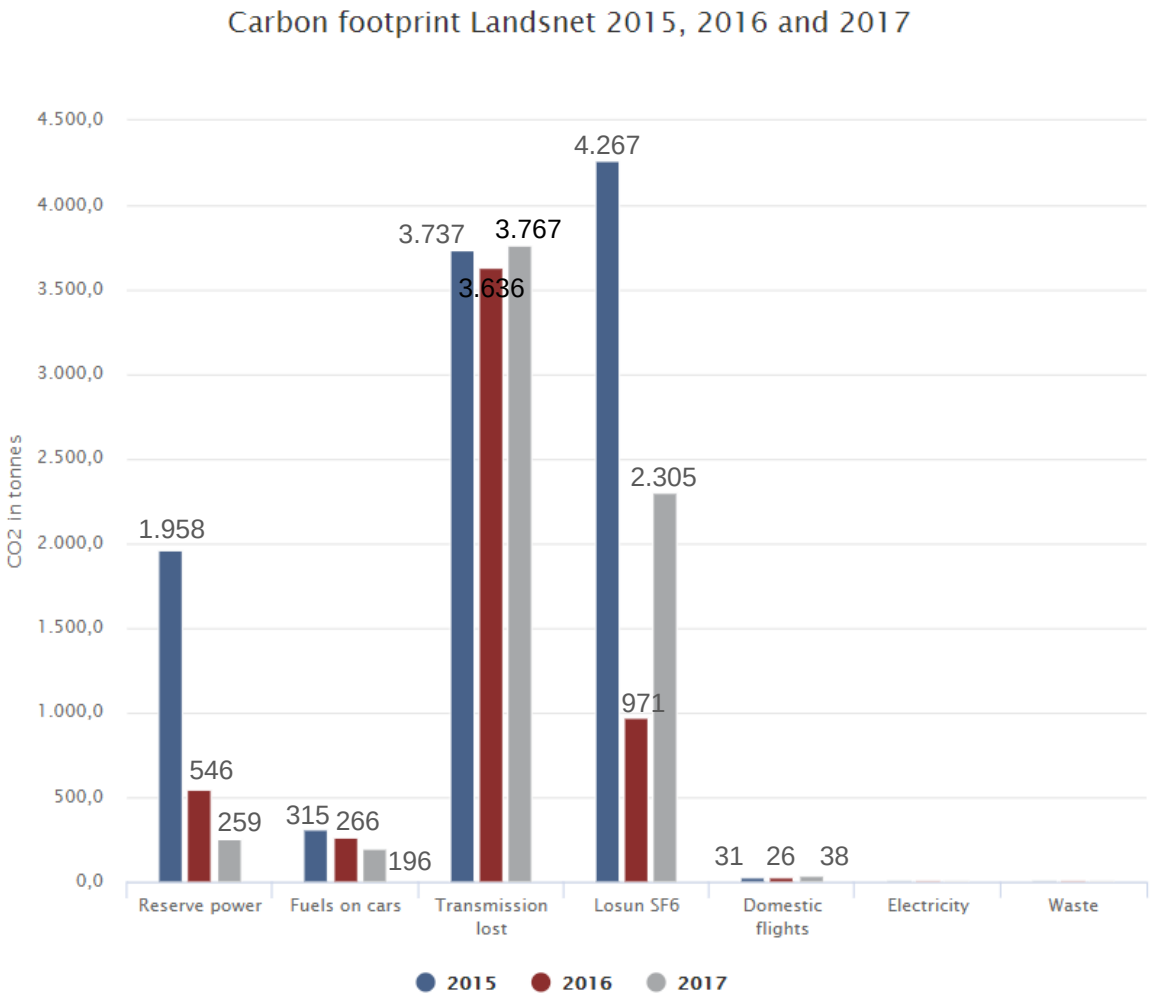
out in cooperation with stakeholders, regulators, landowners and local authorities, who review the handling of the environment.

Carbon footprint

The carbon footprint is a measure of greenhouse gas emissions in connection with operations, and Landsnet has set the goal of reducing the carbon footprint from its activities. An emphasis is placed on the classification of waste at the company, minimising reserve power use, minimising transmission losses and the leakage of insulation gas. Continuous improvements are being made and carbon dioxide (CO2) emissions from operations are well monitored.

Our carbon footprint increased by 17% between 2016 and 2017 and was equivalent to 6,582 tonnes of carbon dioxide (CO_2) compared with 5,464 tonnes in 2016. The increase is primarily due to the leakage of sulphur hexafluoride (SF_6) insulation gas, which is used as an ignition switch in electrical equipment in the substations. Waste sorting was successful in 2017 and we sorted 81% of the waste we produced. This is an increase of 24% or 2.5 tonnes when compared with the 59% sorted in 2016

Waste has been categorised for over seven years and decreased by half between years, from 19.8 carbon dioxide tonnes in 2015 to about 10 tonnes in 2016. The increase in air travel (domestic flights) can be attributed to extensive construction work carried out in Húsavík and Akureyri. The production of back-up power using diesel engines and vehicle fuel consumption was also considerably less than in the previous year. Transmission losses have increased between years.


Carbon footprint Landsnet 2015, 2016 and 2017
CO2 in tonnes
4.500,0
4.000,0
3.500,0
3.000,0
2.500,0
2.000,0
1.500,0
1.000,0
500,0
0,0
1.958
546
259
315
266
196
3.737
3.636
3.767
4.267
971
2.305
31
26
38
Reserve power
Fuels on cars
Transmission lost
Losun SF6
Domestic flights
Electricity
Waste
2015
2016
2017

BUSINESS

Customers

"Extensive developments are taking place within the electricity market, and the business environment is more dynamic than ever."

Efforts have been made to improve customer services through new and improved service processes and a new approach to accessing information on our website. The goal is to achieve a holistic approach to the issues brought up by customers and to ensure the correct processes are used to rectify these situations.

Developments within the business environment

Extensive developments have been experienced within the electricity market and the business environment is more dynamic than ever. These developments bring many challenges and a demand for speedy responses and increased construction. They also create greater uncertainty and risk.

It is important for us to respond to these challenges and the changing climate while at the same time fulfilling our obligations, minimising risk and maintaining quality in the security of supply and service.

Energy-intensive users have shown an increased interest in the new business model for the connection of wind turbines and small-scale power stations to the transmission system which increases the need for increased flexibility within the transmission system. There must also be a clear and official process for the connection process.

We worked on the following developments in our business environment in response to the needs of the market:

- Wind turbines could be connected to the transmission system by updating the grid code for technical requirements for production units (D1). The goal of the grid code is to outline the requirements for wind turbines and power stations from 1.5 MW connecting to the transmission system.The grid code has been sent to the ministry for confirmation and will become valid once the relevant procedures have been fulfilled.
- Transparency regarding cost decisions for the connection of new power stations and energy-intensive users to the transmission system with the new

grid codes for the system contribution (D3). The grid code has been sent to the ministry for confirmation and will become valid once the relevant procedures have been fulfilled.

Increased user access to system services to increase market competitiveness and transmission flexibility:

- Only power stations can currently offer this. The goal of the review of grid codes is to ensure increased access for our diverse customer base. The grid code is currently being reviewed by our customers and is scheduled to become valid in the second half of 2018.

Work on the revision of the tariff structure began this year. The current structure has remained unchanged since the establishment of Landsnet in 2005, but the environment is changing rapidly and many developments, both within and outside the country, have demanded a review. These include adaptations to European legislation, energy market development, energy policy, changes in the business environment, and the size and nature of customers. The aim is to split the project into two phases and to work with energy market participants on assessing the needs for the first phase, which is scheduled for completion in the spring of 2018.

Our main customers include electricity producers, distributors, energy intensive users and suppliers:

Distributors

RARIK

HS Veitur

Norðurorka

Veitur

Orkubú Vestfjarða

Rafveita Reyðarfjarðar

Producers

Landsvirkjun

ON

HS Orka

Orkusalan

Fallorka

Íslensk orkumiðlun

Energy intensive users

ADC

Verne Holding

United Silicon

Becromal

ISAL

Alcoa

Elkem

Norðurál

Grid codes

Changes were made to the terms for technical requirements for operating units (D1) this year, alongside a prototype for grid codes for the system contribution (D3). These were introduced to representatives of Landsnet's Business Council in October 2016 and were subsequently submitted for a review process. Both grid codes will take effect in 2017.

Changes to Grid Code D1 include important adaptation measures for a variety of processing units, e.g. wind turbines. We also reviewed technical requirements and processing units below 10 MW with the option of connecting directly to our transmission network.

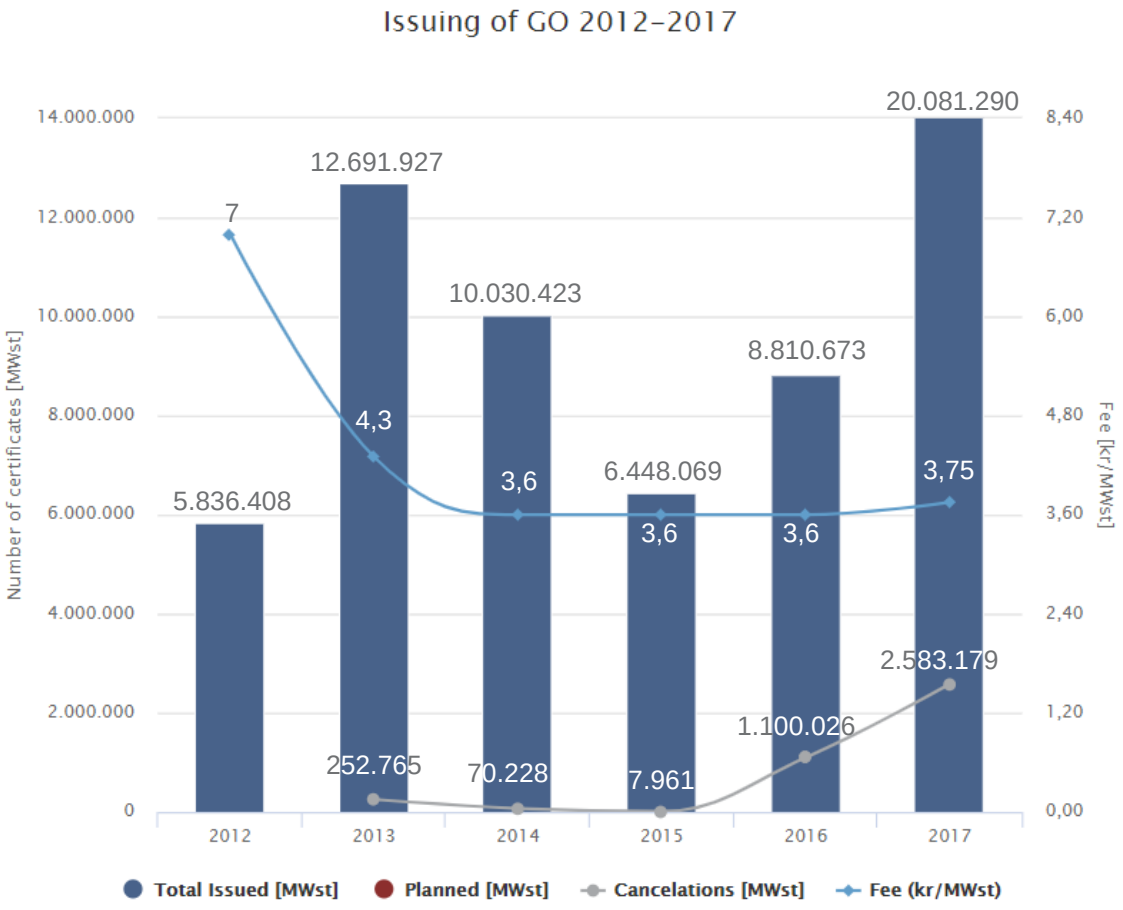
Our terms on system contribution are new and were requested by the EFTA Surveillance Authority (ESA) to ensure transparency in cost decisions for the connection of new power stations or users of the transmission system.

Guarantees of Origin of electricity (GOs)

Landsnet issues Guarantees of Origin of electricity (GOs) which confirm that a certain amount of electricity is generated from renewable energy sources. The issue of these certificates increased by a third between the years 2015 and 2016.

Re-certification was carried out for production facilities that received their first certification in 2011. A decision was made not to charge for re-certification in cases where there had been no change in equipment or the operation of the stations. Landsnet's tariff list for certification management was also increased by 4%. This will take effect from the beginning of 2017. The list was last updated in May 2014.

The accompanying figure shows developments in the issue of certificates of origin in MWh, the number of registered certificates in MWh and price developments.


Issuing of GO 2012-2017
14.000.000
12.000.000
10.000.000
8.000.000
6.000.000
4.000.000
2.000.000
0
Number of certificates [MWst]
8,40
7,20
6,00
4,80
3,60
2,40
1,20
0,00
Fee [kr/MWst]
5.836.408
12.691.927
10.030.423
6.448.069
8.810.673
20.081.290
7
4,3
3,6
3,6
3,6
3,75
252.765
70.228
7.961
1.100.026
2.583.179
2012
2013
2014
2015
2016
2017
Total Issued [MWst]
Planned [MWst]
Cancelations [MWst]
Fee (kr/MWst)

SOCIETY

"Numerous meetings were held with stakeholders where a wide range of topics were discussed. A new procedure was introduced, focusing on increased consultation, dialogue and disclosure which are reflected, among other things in a modified system and community policy. This has resulted in a changing attitude towards the company, based on knowledge dissemination and trust."

Scholarships and community grants

Each year, we support community projects within our field as well as projects carried out on our behalf.

Cooperation with the Kolviður Fund

A contract was signed this year between Landsnet and the Kolviður Fund to carbon “neutralise” all domestic flights on our behalf.

Co-operation with Reykjavik University

During the year, Landsnet continued to support Reykjavik University (RU) by providing internships for students at RU’s School of Science and Engineering. The agreement aims to promote students’ expertise in the fields of risk analysis and electricity transmission.

Landsnet and RU's Centre of Risk and Decision Analysis (CORDA) collaboration on scholarships for doctoral students also continued this year. The aim is to increase knowledge and expertise in risk and decision analysis.

University of Iceland engineering students

Landsnet supports the Team Spark initiative where engineering students at the University of Iceland compete in building electric racing cars. The team entered the car into the Formula Student race at the Silverstone Circuit in England this year.

Charity support

Instead of sending Christmas cards to its customers, Landsnet annually contributes an equivalent amount to charities and welfare organisations. This year we supported PIETA.

Co-operation agreement with ICE-SAR

Landsnet continued its collaboration with Landsvirkjun, RARIK and the Icelandic Association for Search and Rescue (ICE-SAR). The agreement ensures that the three electricity companies receive the assistance of search and rescue teams in emergencies and in other cases where assistance is required. The agreement also provides the electricity companies' employees with access to training at the ICE-SAR Search and Rescue Academy and outlines defined response procedures for the rescue teams whenever the energy companies need their assistance.

TRANSMISSION

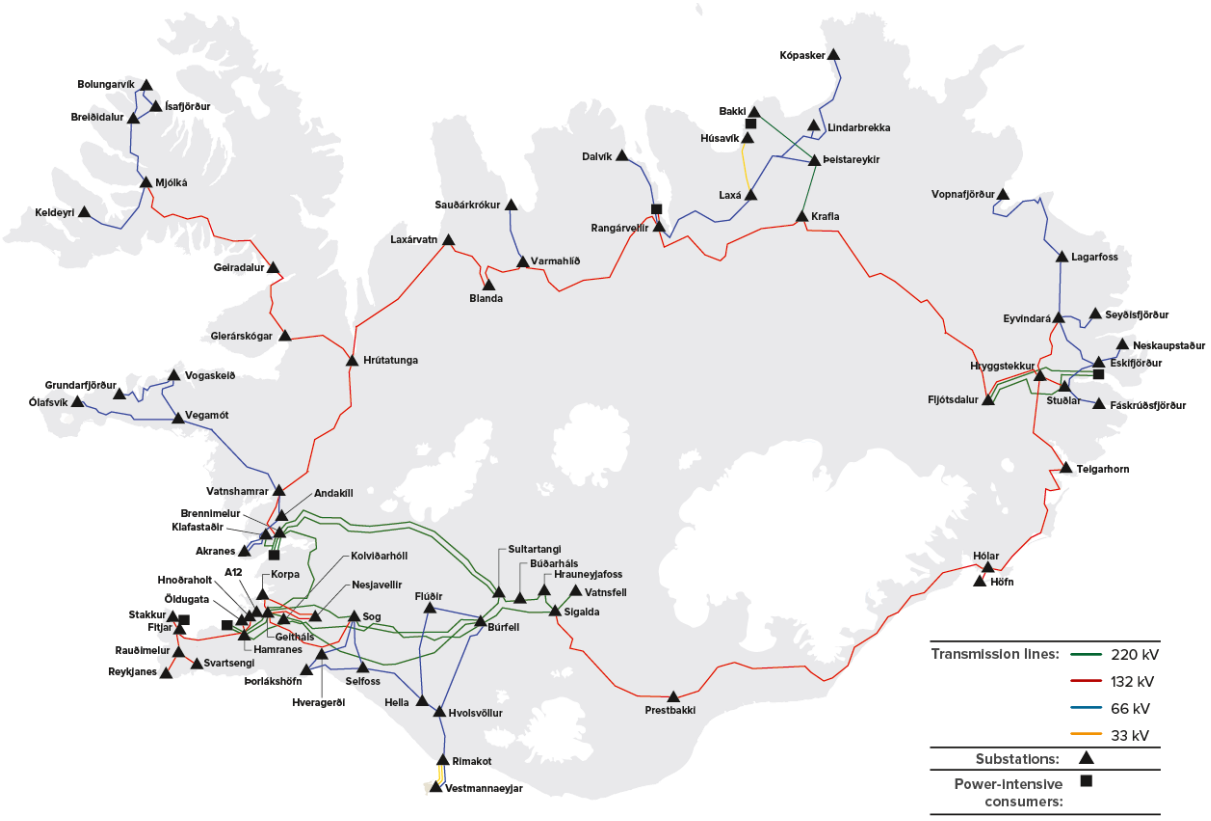
Skoða vefsjá

The grid 2017

"Landsnet owns and operates all bulk transmission lines in Iceland. The grid also includes all main substations in the country."

Iceland has only one single defined grid but a number of regional or distribution networks.

The grid receives electricity directly from power stations and transmits it to distributors and power-intensive users. All power stations that are 10 MW or larger connect to the grid, which transmits the electricity to energy intensive consumers and distribution system operators around the country. The distributors then carry the electricity onwards to individual consumers.



Electricity cables at year end 2017

Our transmission network covered a distance of 3,283 in 2016 including 251 km of underground cables. The network includes voltages of 66 kV and higher as well as a number of 33 kV lines. The grid's highest operating voltage is 220 kV. A large part of the grid operates at 132 kV and some parts at 66 kV and 33 kV. Transmission lines in the south-west and east of Iceland were built as 420 kV lines but operate at 220 kV.

Transmisson line network in 2017

Voltage [kV]	Name	KKS code	First year in service	Connected substations	Length [km]	Of which undergr. [km]
220	Brennimelur Line 1	BR1	1977 / 2006	Geithals-Brennimelur	58.6	
	Búðarháls Line 1	BH1	2014	Búðarháls-HR1 (Langalda)	5.6	
	Búrfell Line 1	BU1	1969	Búrfell-Írafoss	60.8	
	Búrfell Line 2	BU2	1973	Búrfell-Kolviðarhóll	86	
	Búrfell Line 3 (partly built for 400 kV)	BU3	1992/1998	Búrfell-Hamranes	119.07	0.07
	Fljótsdalur Line 3 (built for 400 kV)	FL3	2007	Fljótsdalur-Reyðarfjörður	49	
	Fljótsdalur Line 4 (built for 400 kV)	FL4	2007	Fljótsdalur-Reyðarfjörður	53	
	Hamranes Line 1	HN1	1969	Geithals-Hamranes	15.1	
	Hamranes Line 2	HN2	1969	Geithals-Hamranes	15.1	
	Hrauneyjafoss Line 1	HR1	1982	Hrauneyjafoss-Sultartangi	19.5	
	Ísal Line 1	IS1	1969	Hamranes-Ísal	2.4	
	Ísal Line 2	IS2	1969	Hamranes-Ísal	2.4	
	Járnblendi Line 1	JA1	1978	Brennimelur-Járnblendivk	4.5	
	Kolviðarhóll Line 1	KH1	1973	Kolviðarhóll-Geithals	17.3	
	Krafla Line 4	KR4	2017	Krafla-Þeistareykir	33	
	Norðurál Line 1	NA1	1998	Brennimelur-Norðurál	4.2	
	Norðurál Line 2	NA2	1998	Brennimelur-Norðurál	4	
	Sigalda Line 2	SI2	1982	Sigalda-Hrauneyjafoss	8.6	
	Sigalda Line 3	SI3	1975/2015	Sigalda-Búrfell	36.8	
	Sog Line 3	SO3	1969	Írafoss-Geithals	35.8	
	Sultartangi Line 1	SU1	1982	Sultartangi-Brennimelur	121.6	
	Sultartangi Line 2	SU2	1999	Sultartangi-Búrfell	12.5	
	Sultartangi Line 3 (built for 400 kV)	SU3	2006	Sultartangi-Brennimelur	119	
	Vatnsfell Line 1	VF1	2001	Vatnsfell-Sigalda	5.8	
	Þeistareykir Line 1	TR1	2017	Þeistareykir-Bakki	28.3	
				Total 220 kV	**917.9**	**0.07**
132	Blanda Line 1	BL1	1977/1991	Blanda-Laxárvatn	32.7	
	Blanda Line 2	BL2	1977/1991	Blanda-Varmahlíð	32.4	
	Eyvindará Line 1	EY1	1977	Hryggstekkur-Eyvindará	27.5	
	Fitjar Line 1	MF1	1991	Rauðimelur-Fitjar	6.8	
	Fitjar Line 2	FI2	2015	Fitjar-Stakkur	8.5	8.5
	Fljótsdalur Line 2	FL2	1978	Fljótsdalur-Hryggstekkur	25	7
	Geiradalur Line 1	GE1	1980	Glerárskógar-Geiradalur	46.7	
	Glerárskógar Line 1	GL1	1983	Hrútatunga-Glerárskógar	33.5	
	Hafnarfjörður Line 1	HF1	1989	Hamranes-Öldugata	4	4
	Höfn Line 1	HA1	1987/2014	Hólar-Höfn	7	1.5
	Hnoðraholt Line 1	AD7	1990	Hamranes-Hnoðraholt	9.7	2
	Hólar Line 1	HO1	1981	Teigarhorn-Hólar	75.1	
	Hrútatunga Line 1	HT1	1976	Vatnshamrar-Hrútatunga	77.1	
	Korpa Line 1	KO1	1974	Geithals-Korpa	6	0.3
	Krafla Line 1	KR1	1977	Krafla-Rangárvellir	82.1	
	Krafla Line 2	KR2	1978	Krafla-Fljótsdalur	123.2	0.1
	Laxárvatn Line 1	LV1	1976	Hrútatunga-Laxárvatn	72.7	
	Mjólká Line 1	MJ1	1981	Geiradalur-Mjólká	80.8	
	Nesjavellir Line 1	NE1	1998	Nesjavellir-Korpa	32	16
	Nesjavellir Line 2	NE2	2010	Nesjavellir-Geithals	25	25
	Prestbakki Line 1	PB1	1984	Hólar-Prestbakki	171.4	
	Rangárvellir Line 1	RA1	1974	Rangárvellir-Varmahlíð	87.5	
	Rangárvellir Line 2	RA2	2009	Rangárvellir-Krossanes	4.5	5
	Rauðimelur Line 1	RM1	2006	Reykjanes-Rauðimelur	15	
	Rauðavatn Line 1	RV1	1953	Geithals-A12	3	1
	Sigalda Line 4	SI4	1984	Sigalda-Prestbakki	78.1	
	Sog Line 2	SO2	1953	Írafoss-Geithals	44.4	
	Stuðlar Line 1	SR1	2005	Hryggstekkur-Stuðlar	16	16
	Suðurnes Line 1	SN1	1991	Hamranes-Fitjar	30.7	0.1
	Svartsengi Line 1	SM1	1991	Svartsengi-Rauðimelur	4.9	
	Teigarhorn Line 1	TE1	1981	Hryggstekkur-Teigarhorn	49.7	
	Vatnshamrar Line 1	VA1	1977	Vatnshamrar-Brennimelur	20.2	
				Total 132 kV	**1333.2**	**86.4**

66	Akranes Line 1	AK1	1996	Brennimelur-Akranes	18.5	18.5
	Andakíll Line 1	AN1	1966	Andakílsvirkjun-Akranes	34.85	1.3
	Bolungarvík Line 1	BV1	1979/2014	Breiðidalur-Bolungarvík	17.1	1
	Bolungarvík Line 2	BV2	2010/2014	Ísafjörður-Bolungarvík	15.3	15.3
	Breiðidalur Line 1	BD1	1975	Mjólká-Breiðidalur	36.4	0.8
	Dalvík Line 1	DA1	1982	Rangárvellir-Dalvík	39	0.1
	Eskifjörður Line 1	ES1	2001	Eyvindará-Eskifjörður	29.1	0.3
	Fáskrúðsfjörður Line 1	FA1	1989	Stuðlar-Fáskrúðsfjörður	16.8	
	Flúðir Line 1	FU1	1978	Búrfell-Flúðir	27.4	0.6
	Grundarfjörður Line 1	GF1	1985	Vogaskeið-Grundarfjörður	35.4	
	Hella Line 1	HE1	1995	Flúðir-Hella	34.4	1.7
	Hella Line 2	HE2	2015	Hella-Hvolsvöllur	13	13
	Hveragerði Line 1	HG1	1982	Ljósafoss-Hveragerði	15.4	0.1
	Hvolsvöllur Line 1	HV1	1972	Búrfell-Hvolsvöllur	45.1	0.25
	Ísafjörður Line 1	IF1	1959/2014	Breiðidalur-Ísafjörður	13	3
	Kópasker Line 1	KS1	1983	Laxá-Kópasker	83.3	0.1
	Lagarfoss Line 1	LF1	1971	Lagarfoss-Eyvindará	28	6
	Laxá Line 1	LA1	1953	Laxá-Rangárvellir	58.4	0.7
	Ljósafoss Line 1	LJ1	2002	Ljósafoss-Írafoss	0.6	0.6
	Neskaupstaður Line 1	NK1	1985	Eskifjörður-Neskaupstaður	18.2	1.9
	Ólafsvík Line 1	OL1	1978	Vegamót-Ólafsvík	48.8	
	Rimakot Line 1	RI1	1988	Hvolsvöllur-Rimakot	22.2	0.1
	Sauðárkrókur Line 1	SA1	1974	Varmahlíð-Sauðárkrókur	21.8	
	Selfoss Line 1	SE1	1981	Ljósafoss-Selfoss	20.3	2.7
	Selfoss Line 2	SE2	1947	Selfoss-Hella	32	0.7
	Selfoss Line 3	SE3	2016	Selfoss-Þorlákshöfn	28	28
	Seyðisfjörður Line 1	SF1	1996	Eyvindará-Seyðisfjörður	19.8	
	Steingrímsstöð Line 1	ST1	2003	Steingrímsstöð-Ljósafoss	3.4	1
	Stuðlar Line 2	SR2	1983	Stuðlar-Eskifjörður	18.2	2.4
	Tálknafjörður Line 1	TA1	1985	Mjólká-Keldeyri	45.1	
	Vatnshamrar Line 2	VA2	1974	Andakílsvirkjun-Vatnshamrar	2	0.2
	Vegamót Line 1	VE1	1974	Vatnshamrar-Vegamót	63.8	
	Vestmannaeyjar Line 3 (sub-sea cable)	VM3	2013	Vestmannaeyjar-Rimakot	16	16
	Vogaskeið Line 1	VS1	1974	Vegamót-Vogaskeið	24.8	
	Vopnafjörður Line 1	VP1	1980	Lagarfoss-Vopnafjörður	58	0.15
	Þeistareykir Line 2	TR2	2013	Þeistareykir-KS1 (Höfuðreiðarmúli)	11	11
	Þorlákshöfn Line 1	TO1	1991	Hveragerði-Þorlákhöfn	19.3	0.1
				Total 66 kV	**1033.8**	**127.5**
33	Húsavíkur Line 1	HU1	1948	Laxá-Húsavík	26	0.1
	Vestmannaeyjar Line 1 (sub-sea cable)	VM1	1962	Vestmannaeyjar-Rimakot	16	16
	Vestmannaeyjar Line 2 (sub-sea cable)	VM2	1978	Vestmannaeyjar-Rimakot	16	15
				Total 33 kV	**58**	**31**
				Total	**3343**	**245**

Energy terms/abbreviations
kV=kilovolt
kW=kilowatt
MW=megawatt=1000 kW
kWh=kilowatt hour
MWh=megawatt hour=1000 kWh
GWh=gigawatt hour=1000 MWh

Substations at year-end 2017

The transmission network now includes 74 substations and 85 supply locations, 20 of which are power stations, 8 energy intensive users and 59 supply locations for distributors.

Substations in 2017

Substations	KKS code	Co-owner	Voltage [kV]	First year in service	No. of switchyard bays	Number of transformers
Aðveitustöð 12 / Substation 12	A12	OR	132	2006	1	0
Akranes	AKR	OR	66	2016	4	0
Andakíll	AND	OR	66	1974	3	0
Ásbrú	ASB		33	2011	8	0
Bakki	BAK		220/33	2017	3/4	2
Blanda	BLA	LV	132	1991	5	0
Bolungarvík	BOL		66/11	2014	3/8	0
Breiðidalur	BRD	OV	66	1979	4	0
Brennimelur	BRE	RA	220/132/66	1978	9/4/3	3
Búðarháls	BUD		220	2013	2	0
Búrfell	BUR		220/66	1999	8/4	0
Dalvík	DAL	RA	66	1981	1	0
Eskifjörður	ESK	RA	66	1993	5	0
Eyvindará	EYV	RA	132/66	1975	1/5	1
Fáskrúðsfjörður	FAS	RA	66	1998	3	0
Fitjar	FIT	HS	132	1990	5	0
Fljótsdalur	FLJ		220/132	2007	10/4	2
Fljótur	FLU	RA	66	1995	3	0
Geiradalur	GED	OV	132	1983	3	0
Geithals	GEH		220/132	1969	7/9	2
Glerárskógar	GLE	RA	132	1980	3	0
Grundarfjörður	GRU	RA	66	2017	3	0
Hamranes	HAM		220/132	1989	7/8	2
Hella	HLA	RA	66	1995	4	0
Hnoðraholt	HNO	OR	132	1990	2	0
Hólar	HOL	RA	132	1984	5	0
Hrauneyjafoss	HRA	LV	220	1981	5	0
Hrútatunga	HRU	RA	132	1980	4	0
Hryggstekkur	HRY	RA	132	1978	6/5	1
Húsavík	HUS	RA	33	1978	2	0
Hveragerði	HVE	RA	66	1983	3	0
Hvolsvöllur	HVO	RA	66	1995	4	0
Írafoss	IRA	LV	220/132	1953	3/6	2
Ísafjörður	ISA	OV	66	2014	4	0
Kelduleyri	KEL	OV	66	1979	2	0
Klafastaðir	KLA		220/16	2013	1/4	1
Kolviðarhóll	KOL		220	2006	7	0
Korpa	KOR	OR	132	1976	6	0
Kópasker	KOP	RA	66	1980	1	0
Krafla	KRA	LV	220/132	2017/1977	3/4	1
Lagarfoss	LAG	RA	66	2007	5	0
Laxá	LAX		66/33	2003	6/1	1
Laxárvatn	LAV	RA	132	1977	3	0
Lindarbrekka	LIN	RA	66	1985	1	0
Ljósafoss	LJO	LV	66	1937	6	0
Mjólká	MJO	OV	132/66	1980	2/5	2
Nesjavellir	NES	OR	132	1998	6	0
Neskaupstaður	NKS	RA	66	1994	3	0
Ólafsvík	OLA	RA	66	1980	1	0
Prestbakki	PRB	RA	132	1984	3	0
Rangárvellir	RAN	RA	132/66	1974	8/7	2
Rauðimelur	RAU		132	2006	3	0
Reykjanes	REY	HS	132	2006	3	0
Rimakot	RIM	RA	66/33	1990	2/5	1

Sauðárkrókur	SAU	RA	66	1977	3	0
Selfoss	SEL	RA	66	2005	5	0
Seyðisfjörður	SEY	RA	66	1957	2	0
Sigalda	SIG	LV	220/132	1977	7/1	1
Silfurstjarnan	SIL	RA	66	1992	1	0
Stakkur	STA		132	2016	3	1
Steingrímsstöð	STE	LV	66	1959	1	0
Stuðlar	STU	RA	132/66	1980	3/5	2
Sultartangi	SUL		220	1999	6	0
Svartsengi	SVA	HS	132	1997	4	0
Teigarhorn	TEH	RA	132	2005	3	0
Varmahlíð	VAR	RA	132/66	1977	3/1	1
Vatnsfell	VAF		220	2001	2	0
Vatnshamrar	VAT	RA	132/66	1976	4/6	2
Vegamót	VEG	RA	66	1975	4	0
Vestmannaeyjar	VEM	HS	66/33	2017/2002	1/2	0
Vogaskeið	VOG	RA	66	1975	3	0
Vopnafjörður	VOP	RA	66	1982	1	0
Þeistareykir	THR		220/66	2017/2013	5/1	1
Þorlákshöfn	TOR	RA	66	1991	3	0
Öldugata	OLD		132	1989	3	0

RA=RARIK (Iceland State Electricity)
OV=Westfjord Power Company
HS=Sudurnes Regional Heating
LV=Landsvirkjun
OR=Reykjavik Energy

Energy terms/abbreviations
kV=kilovolt
kW=kilowatt
MW=megawatt=1000 kW
kWh=kilowatt hour
MWh=megawatt hour=1000 kWh
GWh=gigawatt hour=1000 MWh

KEY FIGURES

Key figures(USD thousands)	2016	2017
Output(GWst)	17.485	18.125
Transmission losses (GWst)	360	373
Transmission losses as a ratio of input	2,0%	2,0%
Operating revenue	129.743	147.326
Investing activities	42.007	74.627
Investing activities as a ratio of operating revenue	32,4%	50,7%
Earnings before interests and taxes (EBIT)	49.717	59.338
EBIT as a ratio of operating revenue	38,3%	40,3%
General operating cost	30.011	34.678
General operating cost as a ratio of operating revenue	23,1%	23,5%
Profit	-12.967	28.013
Profit as a ratio of operating revenue	-10,0%	19%
Assets	770.817	851.302
Equity	308.411	336.964
Liabilities	462.406	514.338
Return on equity	-4,1%	8,7%
Equity ratio	40,0%	39,6%
Current ratio	0,97	1,78
Inrester rate coverage ratio	4,3	7,0
Length of overhead transmission lines (km)	2.857	3098
Length of underground and sub-sea cables (km)	243	245
Full - time equivalent positions at year end	119	120

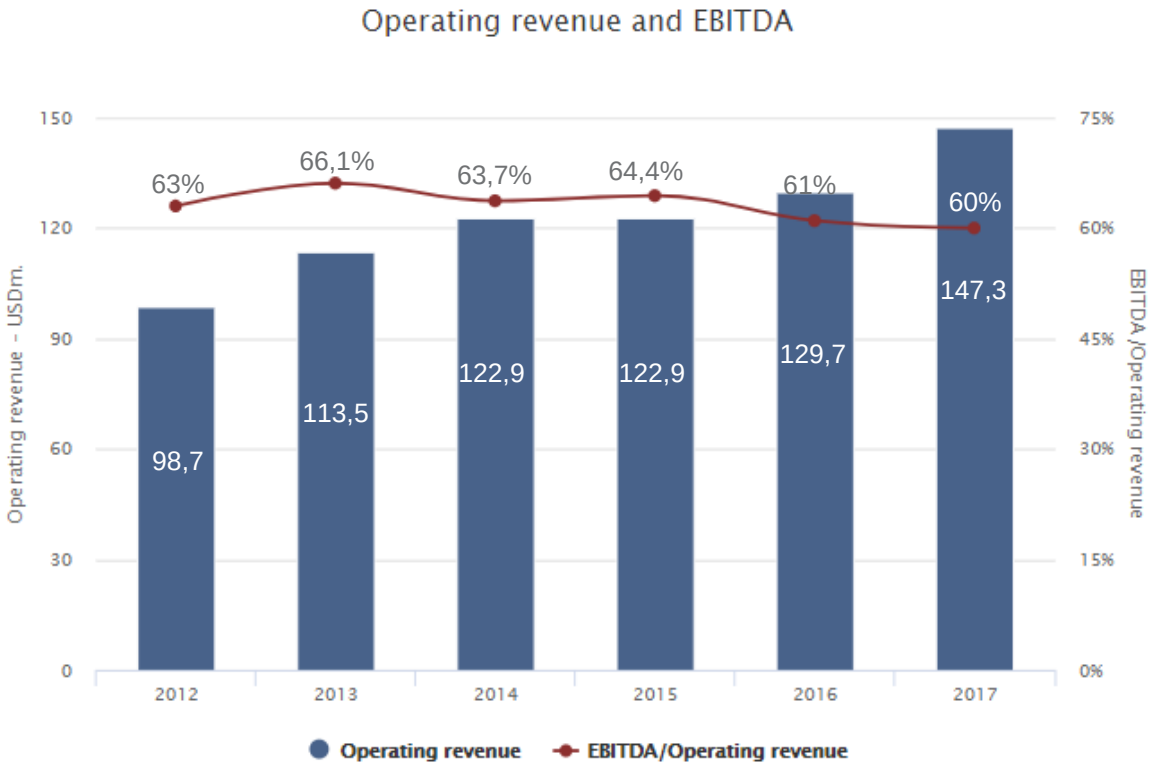
Calculation of key figures:

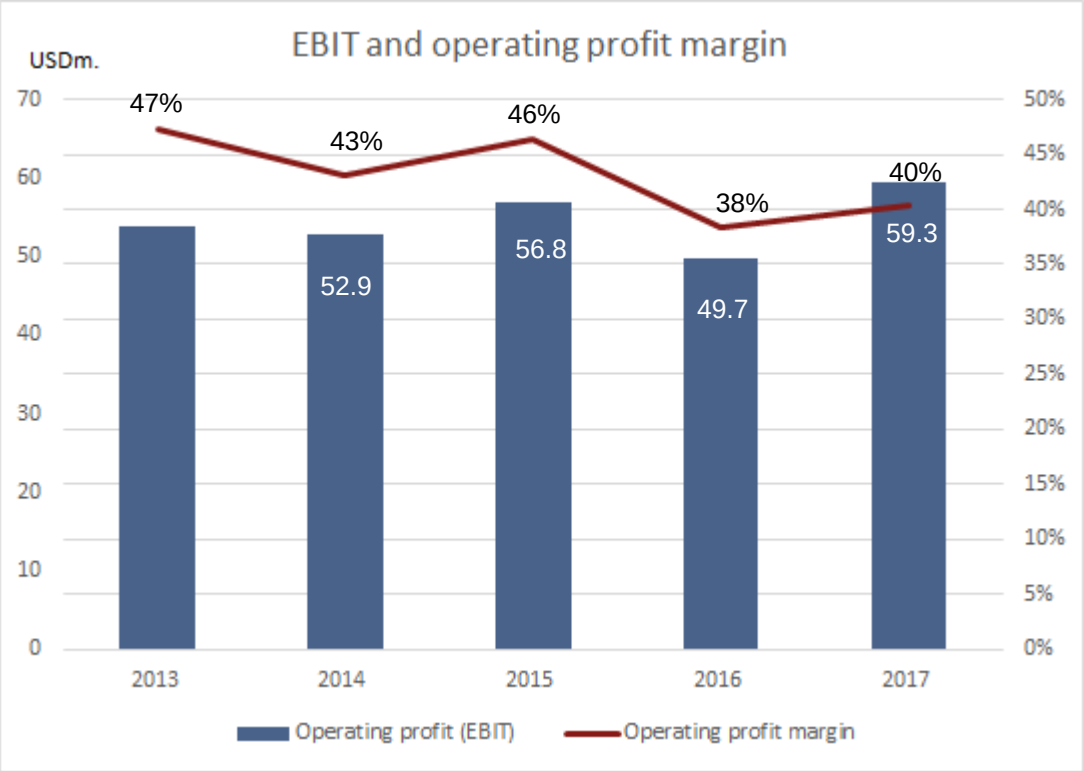
Return on equity = Profit/ Average equity of year

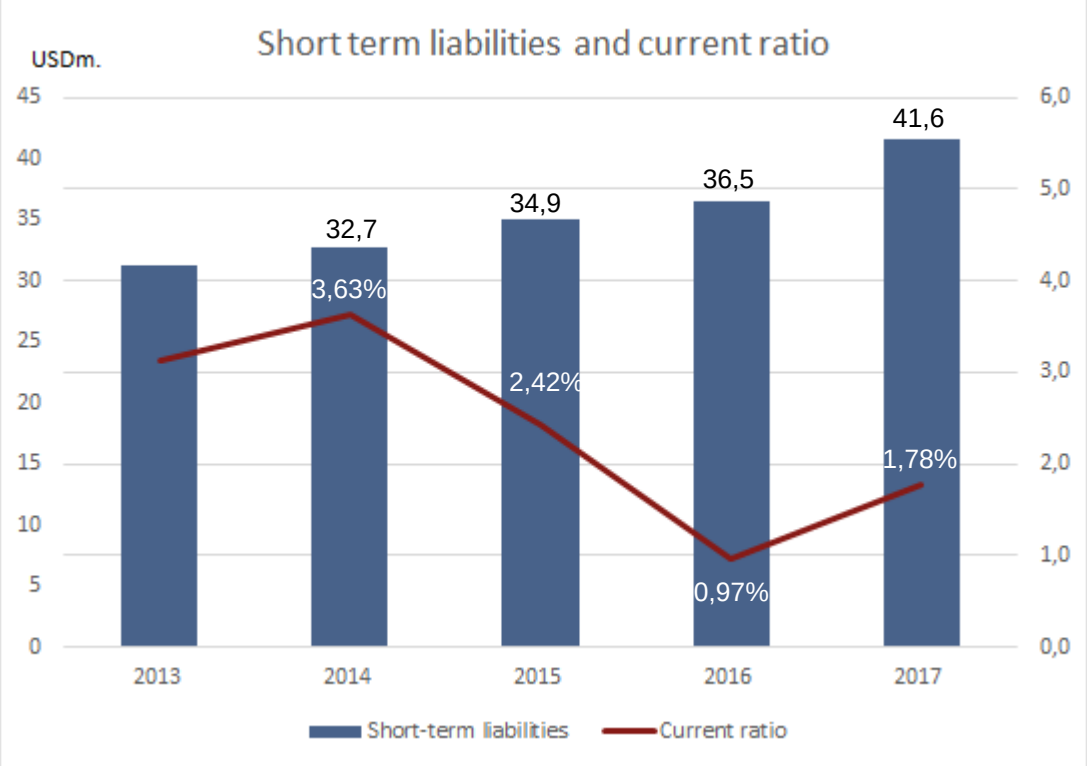
Equity ratio= Equity/ Assets

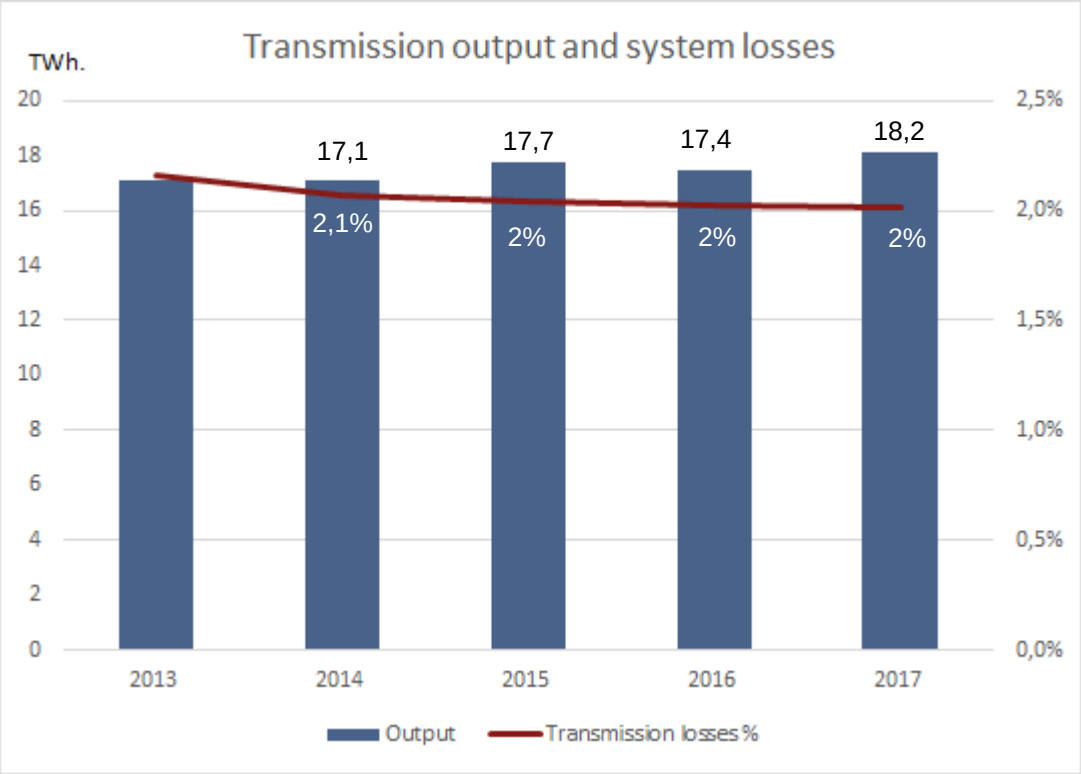
Interest rate coverage ratio= EBITDA / Interest paid

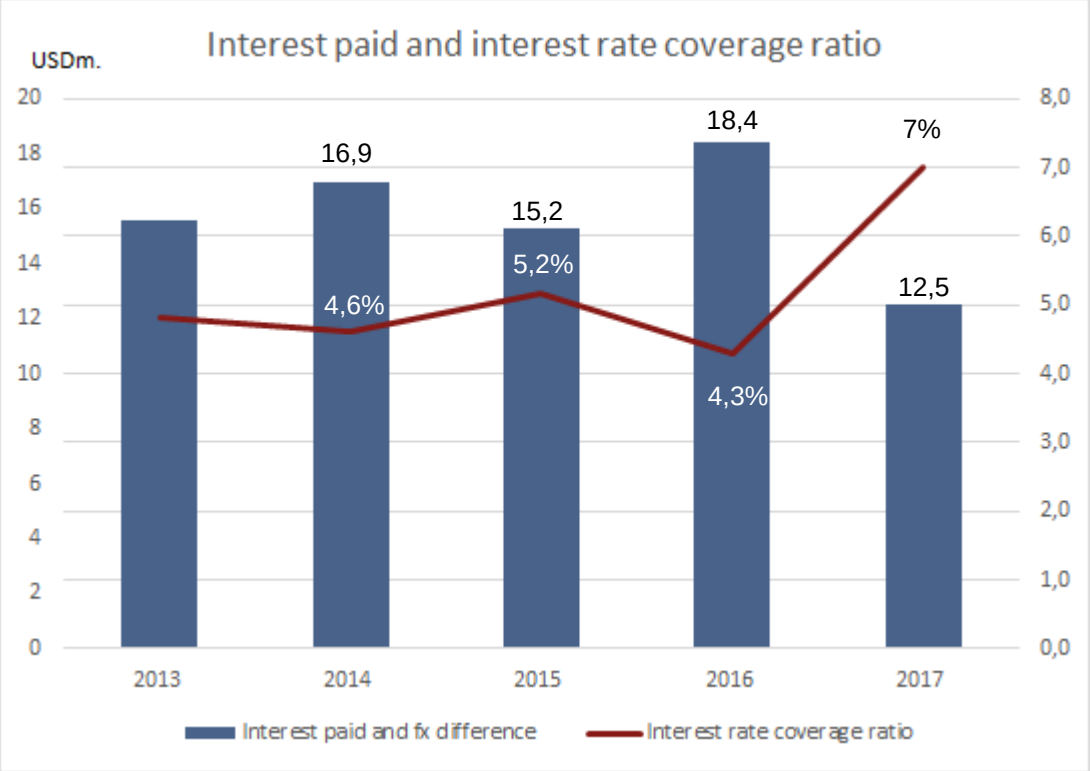
General operating cost = Operating expenses - Depreciation - Ancillary services and losses




EBIT and operating profit margin
USDm.
70
60
50
40
30
20
10
0
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
47%
43%
46%
38%
40%
52.9
56.8
49.7
59.3
2013
2014
2015
2016
2017
Operating profit (EBIT)
Operating profit margin


Short term liabilities and current ratio
USDm.
45
40
35
30
25
20
15
10
5
0
6,0
5,0
4,0
3,0
2,0
1,0
0,0
32,7
34,9
36,5
41,6
3,63%
2,42%
0,97%
1,78%
2013
2014
2015
2016
2017
Short-term liabilities
Current ratio


Transmission output and system losses
TWh.
20
18
16
14
12
10
8
6
4
2
0
2,5%
2,0%
1,5%
1,0%
0,5%
0,0%
17,1
17,7
17,4
18,2
2,1%
2%
2%
2%
2013
2014
2015
2016
2017
Output
Transmission losses %


Interest paid and interest rate coverage ratio
USDm.
20
18
16
14
12
10
8
6
4
2
0
8,0
7,0
6,0
5,0
4,0
3,0
2,0
1,0
0,0
16,9
15,2
18,4
12,5
7%
4,6%
5,2%
4,3%
2013
2014
2015
2016
2017
Interest paid and fx difference
Interest rate coverage ratio

FINANCE AND OPERATIONS

"Operations this year were in line with our plans and it is satisfying to see that the work we have been involved in has led to steady operations, instead of the large fluctuations that we have previously experienced. The refinancing of long-term loans with favourable terms, the transfer to US dollars and procedure improvements has created the balanced operating environment expected.“

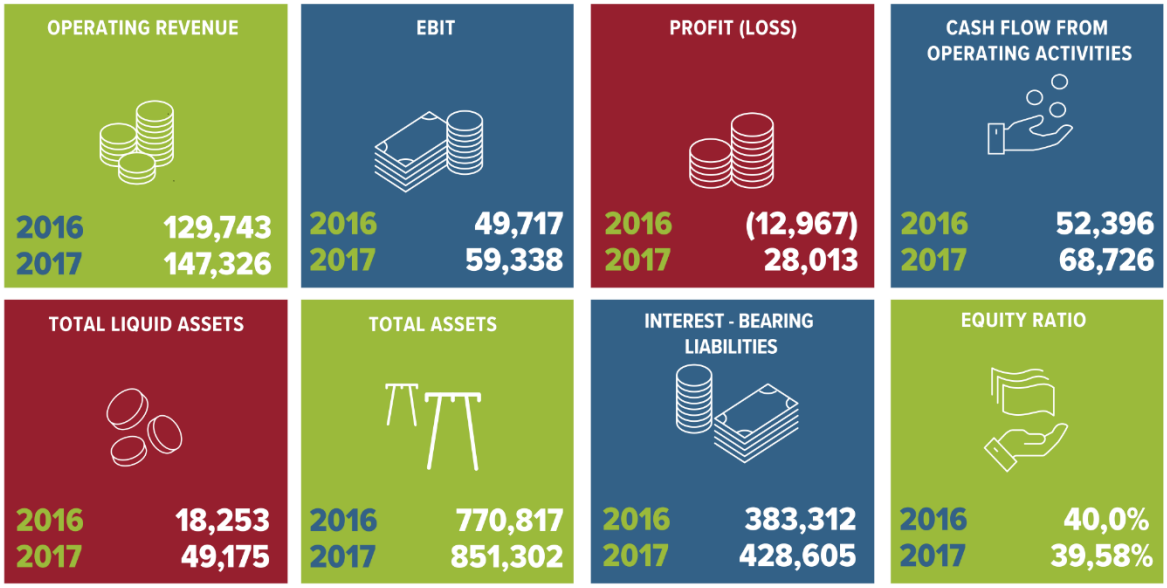
Earnings before interest and taxes (EBIT) were 59.3 million USD (6,336,1 billion ISK), compared with 49.7 million USD in 2016, an increase of 9.6 million USD (1,027,3 billion ISK) between years. The increase can mostly be attributed to changes to the tariff and the strengthened ISK.

Profits amounted to 28 million USD (2,991,2 million ISK) in 2017 compared with losses of 13 million USD (1,384,6 billion ISK) in 2016.

The refinance of long-term loans in 2016, in accordance with Landsnet‘s functional currency, created the balance in operations that had been sought after. The risks associated with currency have decreased significantly and the overall effects of the increased strength of the ISK on operations have not been substantial.

Liquid assets of the company are strong. Net cash availability was 49.2 million USD at year end and net cash provided by operating activities amounted to 68.7 million USD. Strong liquid assets and new funding has ensured financing for planned construction projects in 2018.

Key figures of the financial statement (million USD)



Revenue cap and tariffs

Landsnet operates in accordance with the Electricity Act No. 65/2003. Under Article 12 of the Act, the National Energy Authority (NEA) determines a revenue cap for Landsnet, which decides a tariff for its services in accordance with the cap.

This is a dual system: The transmission of electricity to distribution companies and transmission to power-intensive users. The revenue cap is set for five years at a time, taking into account the Company's historical operating expenses, depreciation of fixed assets, taxes and allowed profitability, decided annually by the National Energy Authority.

The goal of setting a revenue cap is to encourage optimisation in the operation of the transmission company and to ensure that its revenue is in line with the cost of the services it is expected to provide, taking into account profitability.

When the revenue cap of the previous year is settled, the difference between Landsnet’s actual revenues and allowed revenue cap is revealed. An allowed cumulative difference of no more than 10% of the revenue cap can be transferred to the following year. The cumulative difference is referred to here as higher/lower revenue.

If the higher revenues go over the permitted 10%, Landsnet is obliged to adjust its tariffs to bring that ratio below 10% in the following year. However, Landsnet is not allowed to transfer lower revenues which fall below the permitted 10%. These are revenues are therefore lost. Stability in the revenue cap framework and WACC is

therefore important to Landsnet.

Revenue cap and tariffs 2017

A new revenue cap period began in 2016 and is valid until 2020 and previous revenue cap periods have been settled. The approved revenue cap for 2017 was published before the end of March, 2017. The table below shows the decisions of the National Energy Authority on Landsnet's profitability from 2016, after tax:

	2016	2017
Utilities	5,92%	5,75%
Energy intensive consumers	5,48%	5,46%

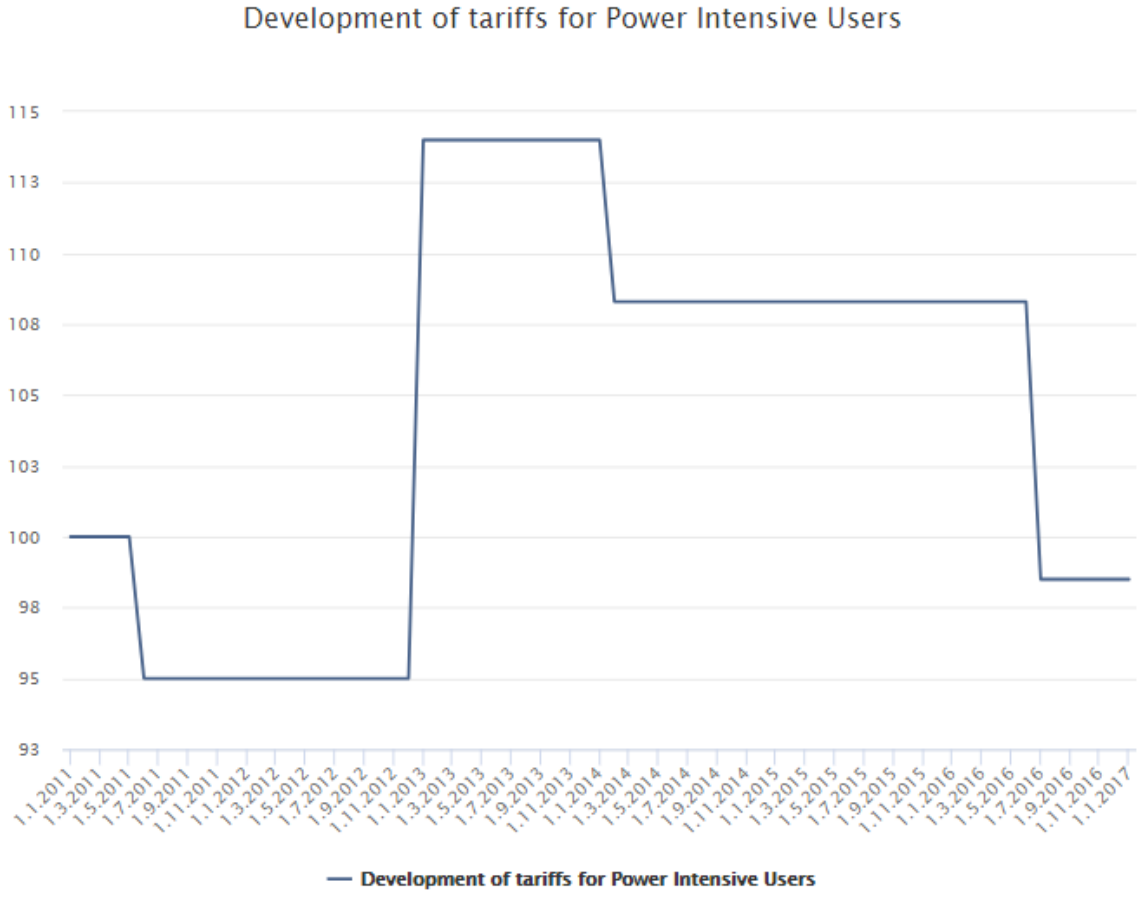
**The National Energy Authority's decision was published before the 21st of July, 2015*

Changes to the transmission tariff for distributors

The tariff for distributors was increased once in 2017. the tariff for distributors did not retain its value between 2008 and 2016 and therefore decreased in real terms. When the revenue cap for 2016 was settled it became clear that the lower revenues were in excess of the permitted 10%, resulting in a loss of revenue. Landsnet had to rectify the situation to prevent any future losses and therefore increased the tariff for distributors by 8.5% on the 1st of August, 2017.

Transmission tariff for energy intensive users

Unchanged transmission tariff for energy intensive users.



Changes to energy purchases due to transmission losses

"This arrangement resulted in more effective feedback on prices to market participants and greater flexibility and efficiency in procurement."

The tariff for energy losses is the same for distributors and energy-intensive users and increased by 10.5% on the 1st of January. The tariff is set on a cost basis with a 1.5% surcharge

Landsnet's transmission loss tariff is identical for distributors and energy-intensive consumers, is issued in ISK and increased by 10.5% on the 1st of January, 2017. Our purchasing of electricity for this purpose is subject to surveillance by the National Energy Authority, which ensures that the tariff is based on the purchasing price plus a 1.5% margin to meet administration costs. Under the Electricity Act, we must provide electricity to replace grid losses. The cost of transmission losses has been rising in recent years, partly because of growing transmission losses attendant with increased generation and partly because of an upturn in the average price resulting from tender processes.

Auctions for transmission losses (short term) were held and the first half of the year was auctioned at the end of 2016. The auction period was further shortened and the second half of 2017 was auctioned in two parts, i.e. the 3rd quarter was announced in spring and the fourth quarter at the end of the summer. The first quarter of 2018 was finally announced in the autumn of 2017. This arrangement resulted in more effective feedback on prices to market participants and greater flexibility and efficiency in procurement.

Tariff increase for ancillary services

Ancillary services are the services Landsnet provides to maintain operational security and balance between supply and demand of electricity at any given time. This includes spinning reserves for frequency control and disturbances, non-spinning reserves and instantaneous disturbance reserves. Landsnet must also provide guaranteed regulating power to operate a balancing energy market. To meet these statutory obligations, we purchase electricity, mainly from generating companies, and procure access to non-spinning reserves from distributors.

The tariff for ancillary services was increased by 2.14% in March, 2017 to meet increases due to spinning reserves. Contracts on the purchase and sale of 40MWh of spinning reserves were completed and the tariff increased.

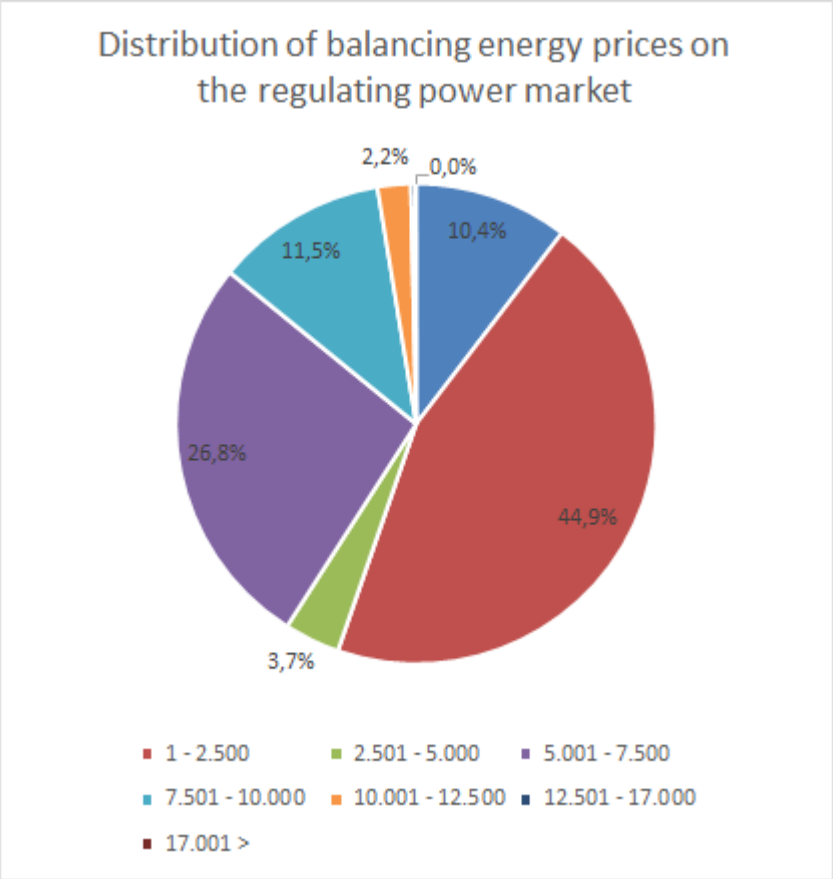
Tariff increase for ancillary services

Ancillary services are the services Landsnet provides to maintain operational security and balance between supply and demand of electricity at any given time. The tariff increased by 4.5% at the beginning of 2016 to meet increased prices on

regulating power which is the power Landsnet procures to balance differences between the forecast and the actual overall energy use in the electrical network.

This includes spinning reserves, additional power that a production unit with automatic frequency control is capable of producing without notice and guaranteed regulating power to operate a balancing energy market and reserve power.

Landsnet obtains resources from processing companies and access to power generation at distribution networks in order to fulfil these statutory obligations. Long-term contracts which ensured the availability of 100 MW of electricity every year expired this year and a new agreement was reached with Landsvirkjun on spinning reserves of 40 MW at the power stations at Blanda, Þjórsá and Tungnaá. Regulating power (40 MW) was also guaranteed and 40 MW for non-spinning in the regulated power market for the period May 2016 to April 2017. The average price of balancing power in the regulated power market was ISK 3,843, and the price distribution is shown on the accompanying pie chart.



Risk assessment

"The objective of risk assessment is to ensure continuous operation under any circumstances

that may arise and to try to secure an acceptable performance, at any given time, with regard to underlying risk factors in operations."

The purpose of risk management is to support the company's basic role which is to transport electricity in a continuous, safe and cost-effective manner, from the producer to the customer. Landsnet is committed to ensuring the safety of employees and customers, the successful operation and development of the transmission system and maintaining a reliable financial position. The company should also be operated in harmony with the environment and society.

Risk assessment is also based on the fact that it provides basic services within society which involves low or moderate risk. The risk appetite and risk tolerance of the company are therefore low.

The goal of the company's risk management is to ensure the continuity of operations under any circumstances that may arise and to aim for an acceptable level of performance at any given time with regard to the underlying risk factors in operations.

New risk assessment system

A new risk assessment system was implemented at the Company this year to meet the requirements of ISO standards. The risk factors that can arise in the Company's operations are defined as well as their potential impact on operations. Organised mitigation measures were also defined to prevent or minimise the impact of these risks and monitor their development.

Landsnet‘s risk profile is divided into four categories:

- Operational risk- risks that may interfere with the continuous operation of electricity transmission to customers
- Management risk- risks that may affect policy, goals and implementation of effective corporate governance
- Financial risk- risks that may affect financial assets, cash flow and availability of capital at any given time
- Danger- risks that may threaten people's security, environment and value of the company

Purchasing and inventory

Landsnet set up the first interactive purchasing system in Iceland for the purchase of transmission losses at the beginning of 2017. New terms and requirements were introduced for suppliers. The year 2017 was in fact Landsnet's largest investment year, but the company also faced a number of challenges. The most difficult challenge was the highly complex and difficult contractual arrangement for the repair of the VM3 sub-sea cable to the Westman Islands, as well as difficult conditions in the construction market, which made it difficult to hire contractors. Twenty two tenders were released this year or five less than in 2016.

New work descriptions were completed for the inventory system and the inventory management system was reorganised. Security was increased in storage areas and a new fence and access gate were set up in Geitháls.