ANNUAL REPORT 2018

COMPANY

Statements

Sigrún Björk Jakobsdóttir Chairman of the Board of Directors:

"On behalf of Landsnet's Board of Directors, I would like to thank all our employees for their contribution during the year. We are proud to be part of the team that keeps Iceland electrified"

It could be said that 2018 has been a year of preparatory projects, dialogue, and collaboration. These include large-scale projects to reinforce the main transmission system, which will be carried out in harmony with society and the environment.

A project committee was established during the year for all larger projects in the preparation phase. A stakeholders' committee was also established to address issues regarding the transmission system. Representatives include the Iceland Nature Conservation Association, the academic community and the business community. This arrangement will hopefully increase knowledge on the energy system infrastructure and its development. I personally believe that these committees will make a tremendous difference.

Landsnet has a highly qualified team who make an important contribution to society, by safeguarding the operation of the electricity transmission system and therefore supporting the labour market. I would like to take the opportunity to thank them all for their hard work.

Landsnet is a knowledge based company and a great deal of emphasis is placed on training and safety issues. We want to be recognised for the things that we do well

and I am very proud to announce that we received the 2018 Education Award (Menntasproti ársins) from the Confederation of Icelandic Employers. We see this as a clear incentive to do even better. We must now focus on implementing an equal pay system.

Electricity issues go hand in hand with environmental issues and we are committed to supporting harmony between the two. Reducing the nation's carbon footprint, by increasing the efficient use of green energy, would be a major step towards this goal but would require the reinforcement of the transmission system. Strengthening the regional network is one of the great challenges of the future.

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.“

I am often asked how I see the future of electricity and how we can meet the increasing demands ahead with an ageing transmission system. The answer is really quite simple. There are two issues that must be addressed. We need to strengthen the main transmission system and the energy market, to better utilise the electricity system, for the benefit of consumers. We need to do this in harmony with society and the environment.

Looking back at 2018, it could be said that the year was a great success for Landsnet. We achieved greater stability in our operations and the security of supply in electricity transmission was satisfactory. Our results for the year were also good.

The year's operations were on schedule and profit was higher than before. Our financial statement reflects the company's priorities. We have focused on increasing the stability of the company's operating environment as well as streamlining processes and procedures.

Our performance with regard to outage minutes was exceptional this year and had a particularly positive impact on general users. I urge you all to look at our Performance Report for 2018.

Demand for energy is increasing. We transmitted more energy via the system this year than ever before. In December, electricity consumption in the system exceeded 2400 MW, which was the peak of the year 2018, and an historic high.

We see great changes ahead with a wider range of electricity generation, new industry and the energy exchange from fossil fuels to renewable electricity. We expect a further increase in energy transmission levels and will subsequently embark on large-scale construction to meet these demands. Tackling these tasks will prove challenging as we must fulfil increasing demands with regard to security of supply and speed, without raising tariffs.

Societal demands and changes within the energy market are ever changing. Landsnet's customer base is growing and their needs must be addressed at a much faster rate than ever before. New customer inquiries have multiplied. This puts a great deal of pressure on the company as most projects are subject to complex licensing processes. The customer need for transparency and faster connections is high and more efficient processes must be developed to meet these requirements. This will require a collaborative effort across the various sectors.

We have placed a great deal of emphasis on knowledge dissemination and engaging in conversation with the public on social media, in the media and on a variety of project and stakeholder meetings. These conversations have resulted in better solutions and a greater understanding of our projects.

There are exciting times ahead, with a wide range of projects all designed to increase the security of supply, transparency, harmony with the environment and energy trading efficiency. This is the route to securing the future, which will be more energised than ever.

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 and organisations, both foreign and domestic. He also has extensive experience in business operations, both at home and abroad.

Svana Helen Björnsdóttir
Board Member

Svava was first appointed to Landsnet's Board in June of 2018. She had previously been a reserve member of the board. She has served on the boards of numerous companies and has extensive experience in management.

Svava Bjarnadóttir
Board Member

Svava was first appointed to Landsnet's Board in June of 2018. She had previously been a reserve member of the board. She has served on the boards of numerous companies and has extensive experience in management.

Ólafur Rúnar Ólafsson
Board Member

Ólafur was first appointed to Landsnet's Board in June of 2018. He had previously been a reserve member of the board. He is a part-time 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.

Sigrún Björk Jakobsdóttir
Chairman of the Board

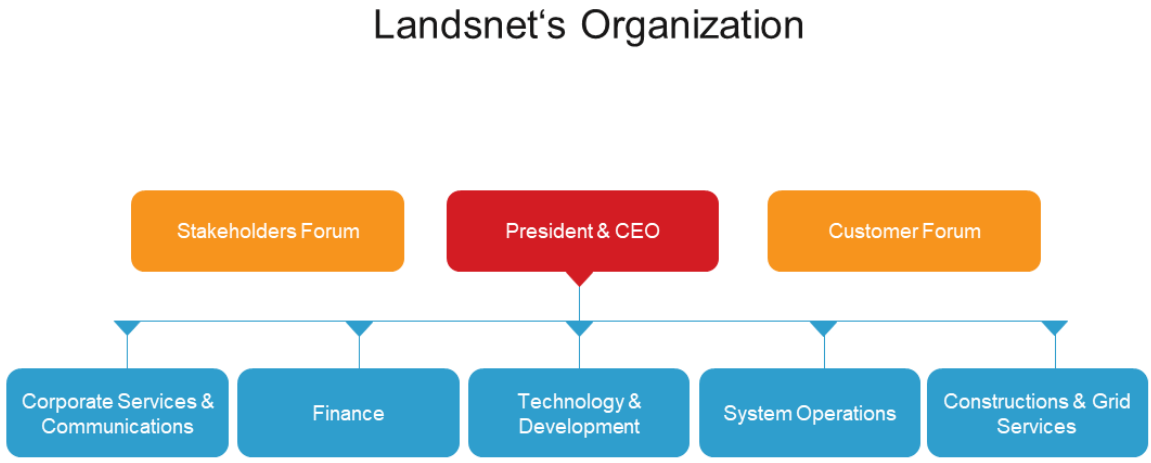
Ómar Benediktsson
Board Member

Svana Helen Björnsdóttir
Board Member

Svava Bjarnadóttir
Board Member

Ólafur Rúnar Ólafsson
Board Member

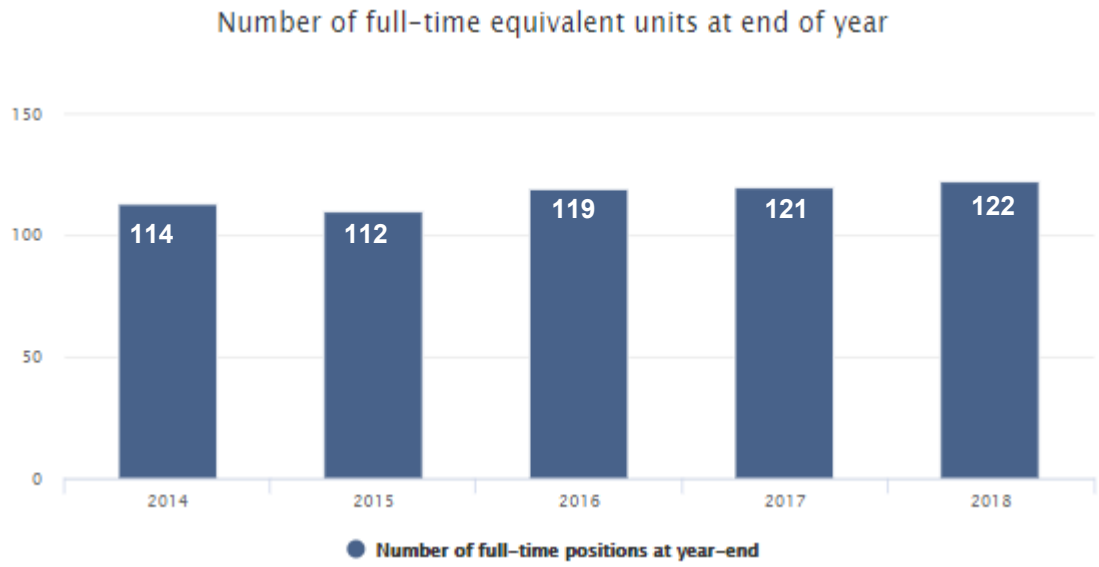
Organizational Chart



Valka Jónsdóttir Human Resources Manager:

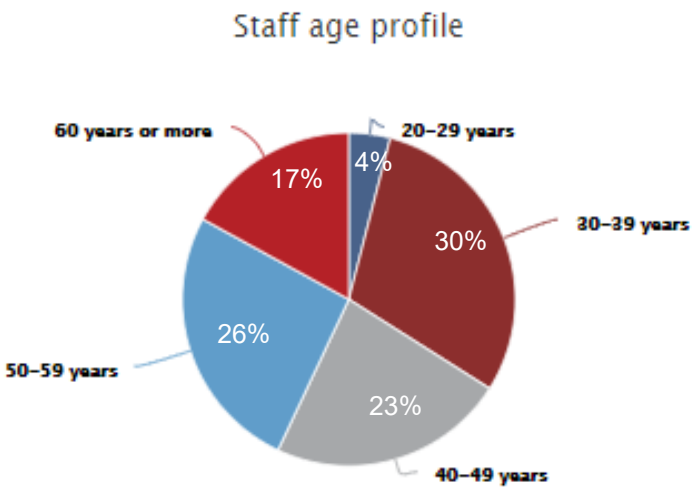
Working as a Human Resources Manager in a company like Landsnet is incredibly fun but, at the same time, challenging. The year was full of challenges, opportunities and awards for our efforts, including the Education Award Menntasproti ársins from the Confederation of Icelandic Employers and the PWC Gold Standard Equal Pay Certification, both of which are tremendously important to us.“

In 2018 the number of full-time positions at year-end was 120. Five new employees joined our team this year and three left, one of whom had reached retirement age. Many of our valued employees will soon reach retirement age and we have been preparing for the challenging task of successfully renewing our team in the coming years by ensuring that we retain expertise and by implementing an organised manpower and recruitment process.



We have benefited from the wide age range of our team, enabling us to acquire valuable and varied experience over the years. However, we must respond to the inevitable changes ahead, as almost one-fifth of our employees could retire within the next 4-7 years. New employees will bring fresh insight and perspective from the market, which can be used to build on the decades of experience and knowledge of our current team.

The average length of employment at Landsnet is 11 years, which is a tremendous benefit to the company. Valuable knowledge is being amassed in a stable environment, which can be transferred to new employees.



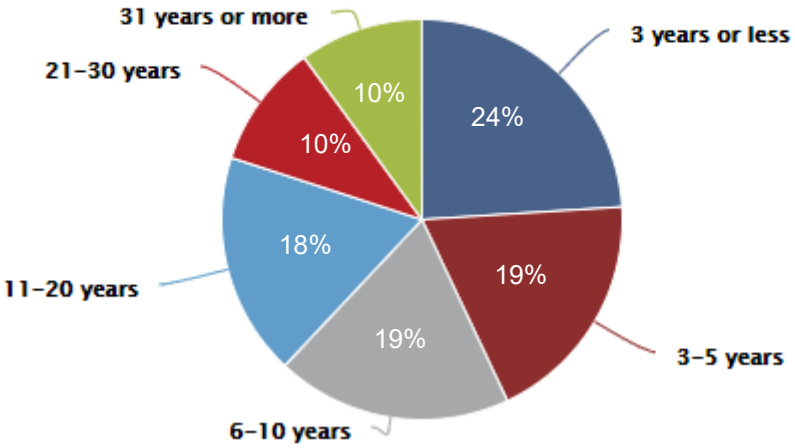
The gender ratio has mostly remained unchanged over the years but we aim to increase the number of women in the workplace and increase diversity within our team. We want to draw more attention to the various opportunities for women in the electricity sector to help improve gender ratios within certain disciplines.

The gender ratio among our team of directors is much more equal in comparison to the workplace as a whole. The proportion of women in management has increased and we intend to continue making improvements in this area. We have also been successful in middle management where the gender ratio between men and women has steadily improved.
Gender ratio in the workplace varies tremendously, depending on the type of work. This means that there are many exciting opportunities for us to improve upon in the future.

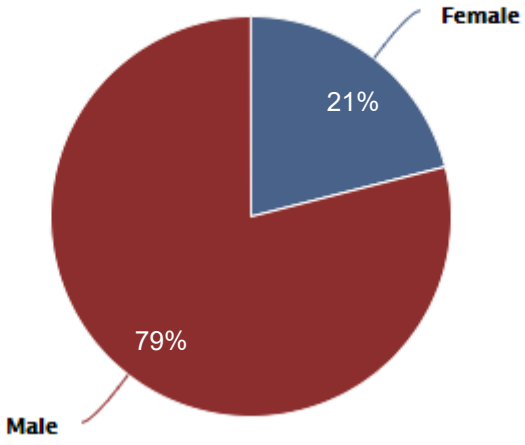
Each year, we offer summer jobs to university students and young people. Fifteen university students were hired by us in 2018. We think it is important to offer these students challenging and practical tasks related to the professions for which they are studying at university. In addition to university students, we recruited 24 young people as part of our social responsibility policy.

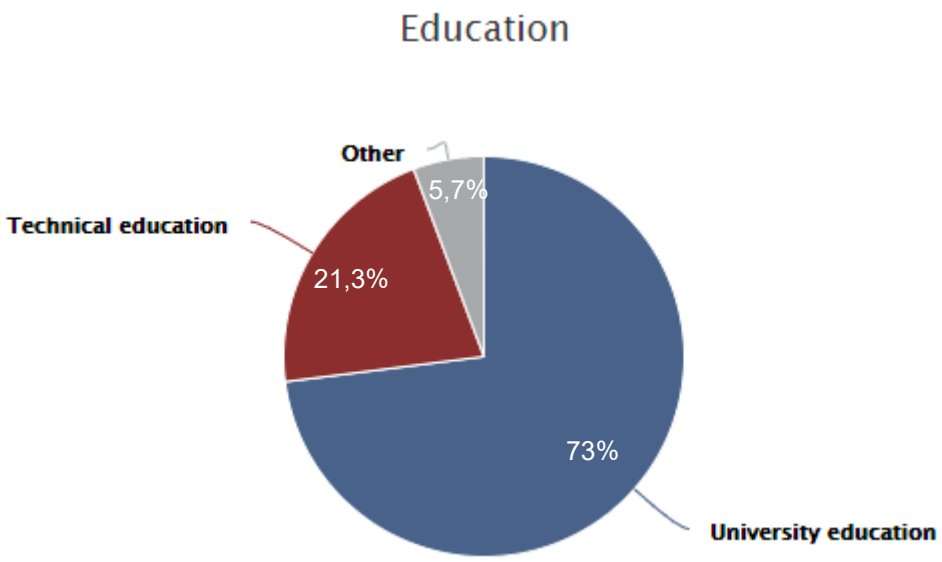
We also received students from Reykjavík University who worked with us on their project assignments or final projects. This co-operation is of great importance to us, as the partnership provides us with the opportunity to introduce Landsnet and its role.

Length of service



Gender ratio





Ólafur Kári Júlíusson, HR Specialist:

„We want to achieve excellence in training our employees and continuous improvement in this area is a key factor in reaching this goal. Identifying the need for training and retraining is also important. We believe that our Grid Services and Control Centre are exemplary examples of this.“

We are a knowledge-based company and do our utmost to ensure the highest degree of expertise for every role within the company. Most of our employees have completed university degrees in engineering. Our Grid Services team mostly consists of electricians or electrical engineers.

In 2017, we launched a training plan for employees, which resulted in more employees applying for continuing education in the workplace. We received the 2018 Education Initiative Award from the SA Confederation of Icelandic Enterprise for our efforts.
The year 2018 was a year of initiatives. We worked with our employees to complete a needs analysis for training purposes, as well as reinforcing professional knowledge within our division. We also worked closely with other divisions within the company to improve the quality of training. The Grid Services division and Control Centre training initiatives are exemplary examples of professional development within the workplace.

Grid Services employees have actively participated in educational audits, which have provided important information on how we can meet the needs of the division with clear and defined objectives. Our cooperation with Rafmennt, Björgunarskóli Landsbjörg and other professionals is a product of this initiative.

The Control Centre has also set clear training goals, including long-term organised simulation training, improved training for new employees in the Control Centre and adapting training to the LEAN approach. Control Centre employees now receive the

right training at the right time, based on the needs and objectives of all employees.

Our employees also train and teach elsewhere, both in Iceland and abroad. We encourage our employees to teach at the university level and in industrial fields of learning. This is just one of the ways we have gained knowledge and experience over the years.

We will continue to work with Endurmenntun at the University of Iceland, Reykjavík University, Rafmennt, technical colleges all over the country, Björgunarskóli Landsbjörg and other professionals within the industry.

Action on bullying harassment and violence in the workplace

We updated our policy on bullying, harassment and violence in the workplace and now we have specific procedures in place to respond to such events. We also provided training on these issues for employees, including presentations on #metoo, workplace bullying and harassment. We updated our equality policy and its action plan, in addition to implementing regular workplace analyses of these important issues.

Workplace analysis

In 2016, we decided to introduce an annual workplace analysis to monitor the development of human resources more closely. A workplace analysis is a detailed analysis of the strengths and challenges within the workplace and highlights the most important issues. This enables managers to work with these issues and to create a motivational work environment for employees. The objective is to identify the most important internal issues.

Job satisfaction

In 2018, job satisfaction continued to increase and is reaching a historical high. We will continue our efforts to create a good, safe and positive work environment.

"Taking our pulse..."

A workplace analysis conducted in 2016 revealed that positive feedback to employees was not effective enough. A project was subsequently launched in 2017 to change the format and content of employee interviews. Short and more informal

interviews are now held more regularly and primarily focus on expectations, internal communication and feedback. The success of this type of interview has gone beyond our expectations and we intend to continue along this path.

PWC Gold Standard and the implementation of the Equal Pay Standard ÍST 85/2012

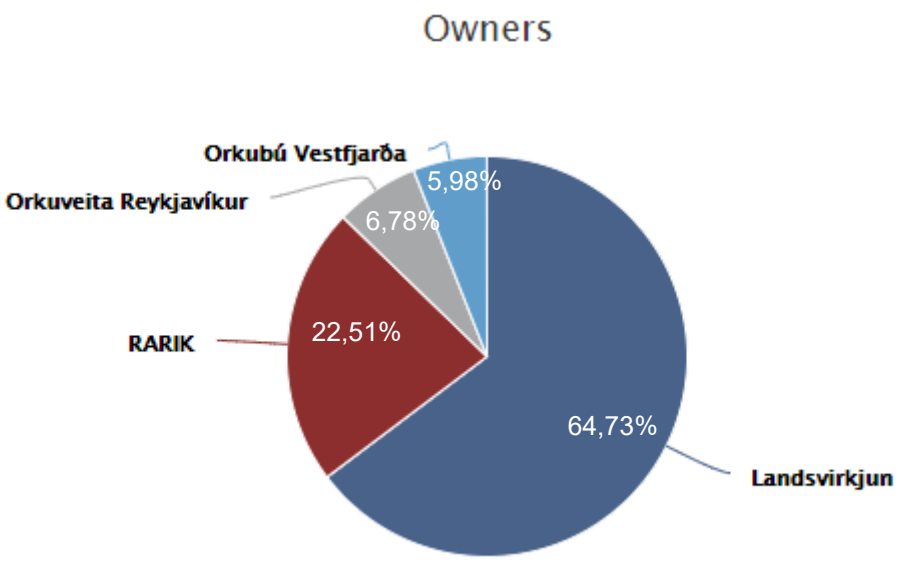
Equal Pay Standard
Icelandic trade unions, the employers' confederation and government officials have developed an equal pay management system called "The Equal Pay Standard" to help prevent salary discrimination.
In 2018, the Icelandic government introduced legislation (the Gender Equality Act: 10/2008) mandating companies and organisations with 25 or more employees to implement the Equal Pay Standard. They are required to undergo an evaluation and receive certification, according to ÍST 85 Standard, No. 1030, verifying that they offer equal pay for equal work.
In 2018, work began on the introduction of an equal pay standard. One of the requirements for an equal pay standard is to carry out a pay check to investigate gender-specific wage differences within the workplace. The audit was conducted in collaboration with PWC and we subsequently received the Gold Standard Award from PWC. The pay gap within the workplace is 2.8%.

We are proud of the fact that we try to reflect our values, Cooperation, Respect and Responsibility in everything we do. The participation and contribution of our staff is a key factor in achieving this success.

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

Jórunn Gunnarsdóttir Project Manager Internal Services:

"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 want to achieve a broad consensus in our future endeavours and 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.

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 the secure and uninterrupted electricity supply within the electricity system at all times.

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 upon 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 all times and in the quantity and 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 focuses of the Company, as well as in promoting an understanding that the electricity grid is, in fact, a fundamental part of our modern infrastructure. We actively work towards achieving consensus with regards to Company operations and on creating awareness of 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 regards to the development and operation of our transmission systems.

Clear image

We strive to cultivate an image synonymous 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 related requirements.

Positive work environment

We care for every employee and inspire them to take on new challenges whilst offering 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 our 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.

FINANCES

FINANCE AND OPERATIONS

Guðlaug Sigurðardóttir, CFO:

"We are pleased that operations this year were in line with expectations and we have achieved our goals."

Key figures of the financial statement:

- Earnings before interest and taxes (EBIT) remained stable at 61.1 million USD compared with 59.3 million USD in 2017.
- Profits amounted to 37.1 million USD in 2018 compared with 28 million USD in 2017.
- The Company's liquid assets are good. Net cash availability was 38.8 million USD and net cash provided by operating activities amounted to 70.4 million USD.

Key figures of the financial statement (million USD) can be seen here.

Revenue cap and tariffs

Landsnet operates in accordance with 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, which are decided annually by the National Energy Authority.

When the revenue cap of the previous year is settled upon, 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 that fall below the permitted 10%. These revenues are therefore lost. Stability in the revenue cap framework and WACC is therefore important to Landsnet.

Revenue cap and tariffs 2018

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 2018 was published on the 25th of April, 2017. The table below shows the decisions of the National Energy Authority on Landsnet's profitability from 2016, after tax:

	2016	2017	2018
Distribution	5,92%	5,75%	5,66%
Energy Intensive consumers	5,48%	5,46%	5,32%

* The decision of the National Energy Authority on profitability was published on the 21st of July, 2015.

Changes to the transmission tariff

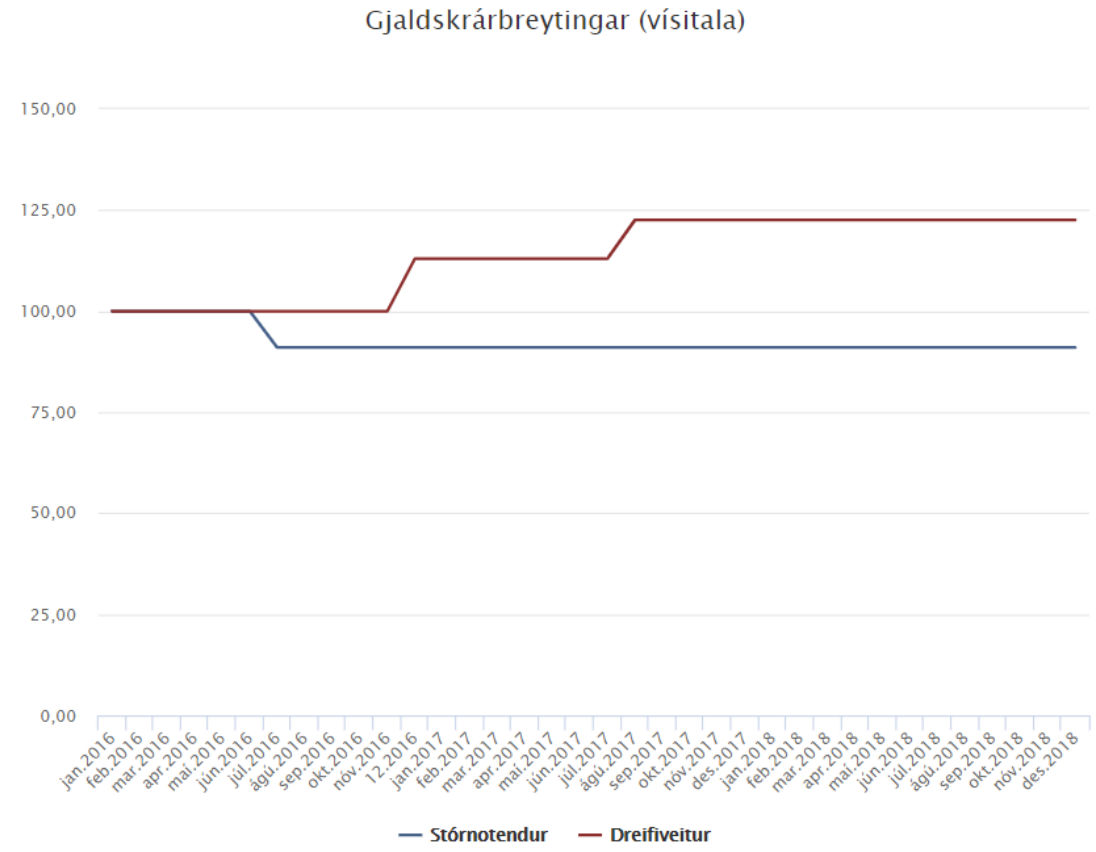
There were no changes to Landsnet's transmission tariffs to distributors or energy-intensive users in 2018.

Landsnet's permitted profitability rose during the current revenue period, and transmission tariffs were subsequently amended. Tariffs for distribution system operators had to be increased twice within a short period to respond to these changes. Tariffs for power-intensive customers were lowered as Landsnet is in the process of repaying debt from the previous revenue period. The tariff for power intensive users is therefore currently too low, but tariffs for distribution system operators remain stable.

Transmission tariff for energy intensive users

Unchanged transmission tariff for energy intensive users.

Unchanged transmission tariff for energy intensive users.



Changes to energy purchases due to transmission losses

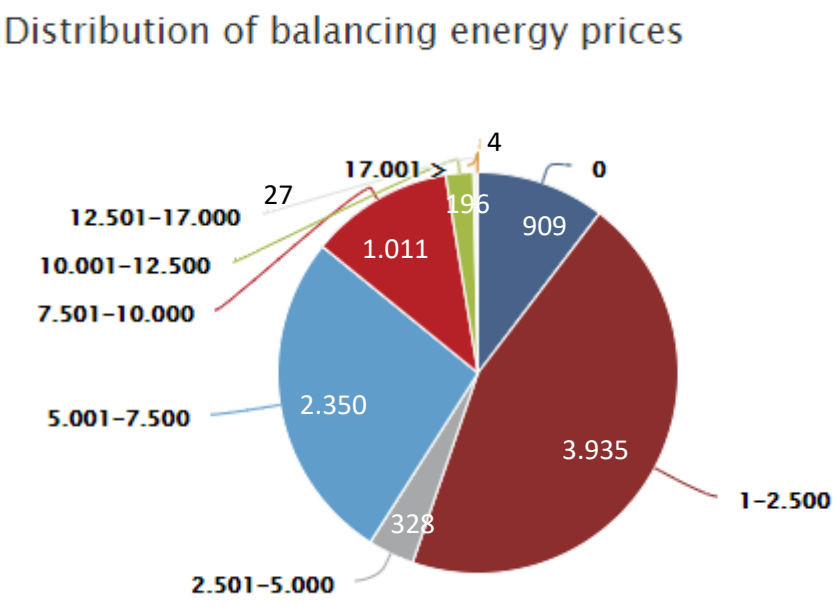
Auctions for transmission losses were held on a quarterly basis in 2018. This arrangement resulted in more effective feedback on prices to market participants and greater flexibility and efficiency in procurement. The tariff for transmission losses changes in line with each auction and should reflect the actual cost of each quarter. A total of four changes were made to tariffs due to transmission losses in 2018 and came into force at the beginning of each quarter (auctions ended two months earlier).

Landsnet's transmission loss tariff is identical for distributors and energy-intensive consumers and is issued in ISK.

Tariff increase for ancillary services

To meet increased prices on regulating power, the tariff increased by 12% on the 1st of July, 2018, in addition to other increases.

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, 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.



Risk assessment

Tryggvi Guðbrandsson, Director of Treasury and Risk:

"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 regards to the 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. Risk factors were assessed during the year, including the safety of employees and customers, the successful operation and development of the transmission system and maintaining a reliable financial position.

Risk management takes into account the principles and guidelines of international standards. Risk management is defined as a part of company culture and company employees are expected to work in accordance with risk management guidelines.

Risk assessment

A risk assessment was completed on risk factors that could arise as a result of the Company's operations. Risk factors were identified, 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. Risk factors and mitigation measures are reviewed on a regular basis.

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, the environment and the value of the company

Each category is then divided into subcategories and the risk criteria defined for each category. The probability and impact of risk are subsequently compared with the risk criteria.

Purchasing and inventory

Helgi Bogason, Purchasing Director

"Eleven tenders were released this year, which is a 50% decrease from the previous year. A substantial number of tenders were held back as a result of licencing issues."

We placed an emphasis on the quality of the process of procurement. A risk-based supplier assessment was introduced and efforts were made to integrate inventory management and procurement processes. Landsnet's tendering system was updated during the year and is now in Icelandic. Procurement projects were diverse and demanding.

We launched an initiative in Landsnet's outdoor areas in the capital area and in Egilsstaðir where all materials were either transported to their correct location or disposed of. A total of 450 tonnes of material were disposed of, much of which had been accumulated from the dismantling of high voltage transmission lines and substations.

Key Figures

Key figures (USD thousands)	2017	2018
Output(GWst)	18.285	18.855
Transmission losses (GWst)	373	398
Transmission losses as a ratio of input	2,0%	2,1%
Operating revenue	147.326	154.139
Investing activities	74.627	34.172
Investing activities as a ratio of operating revenue	51%	22%
Earnings before interests and taxes (EBIT)	59.338	61.052
EBIT as a ratio of operating revenue	40,3%	39,6%
General operating cost	34.678	36.911
General operating cost as a ratio of operating revenue	23,5%	23,9%
Profit	28.013	39.185
Profit as a ratio of operating revenue	19,0%	25,4%
Assets	851.302	846.332
Equity	336.964	370.303
Liabilities	514.338	476.029
Return on equity	8,7%	11,1%
Equity ratio	39,6%	43,8%
Current ratio	1,78	1,43
Inrester rate coverage ratio	7,00	5,98
Length of overhead transmission lines (km)	3.098	3.099
Length of underground and sub-sea cables (km)	245	234
Full - time equivalent positions at year end	120	120

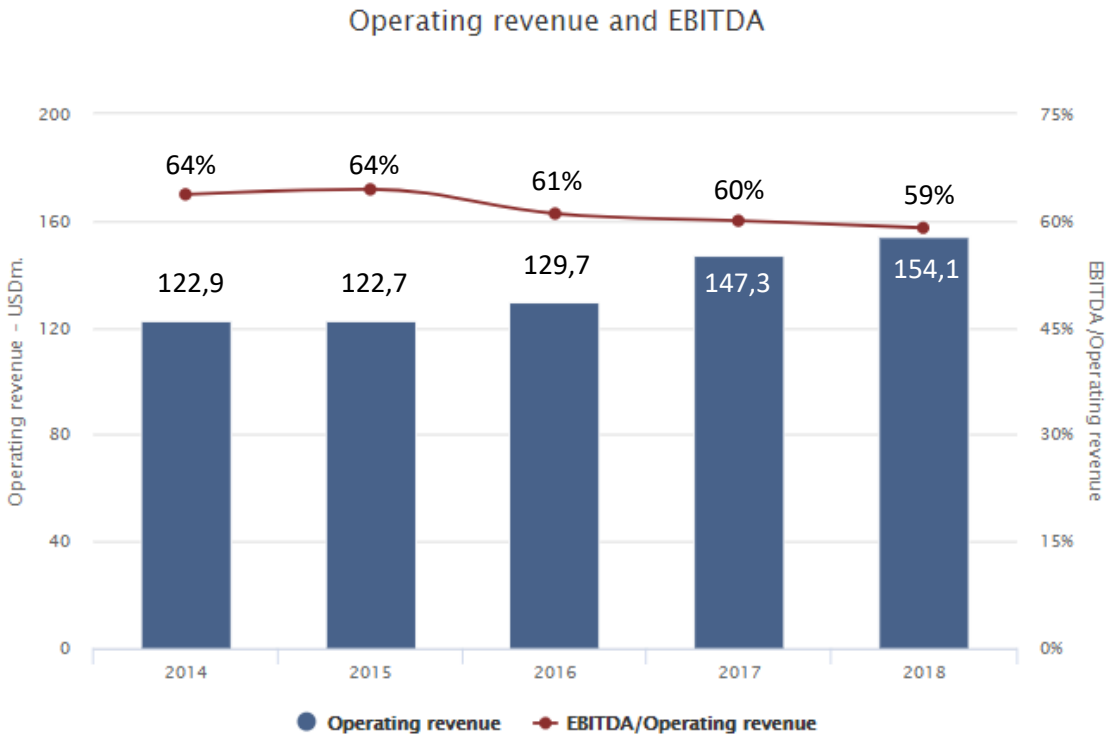
Calculation of key figures:

Return on equity = Profit/ Average equity of year

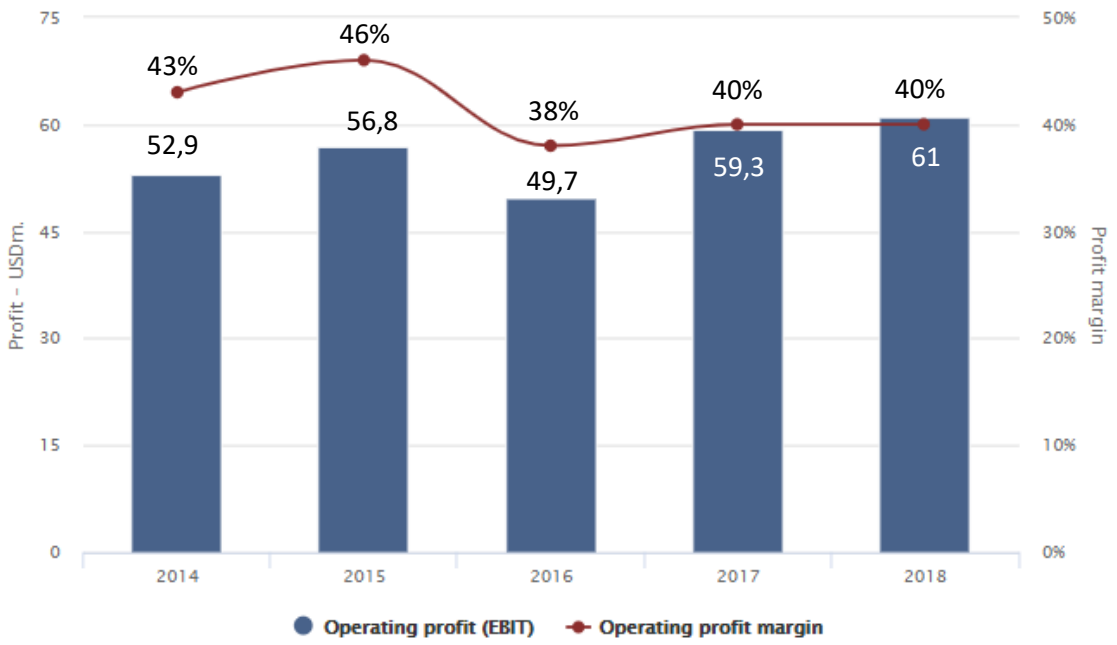
Equity ratio= Equity/ Assets

Interest rate coverage ratio= EBITDA / Interest paid

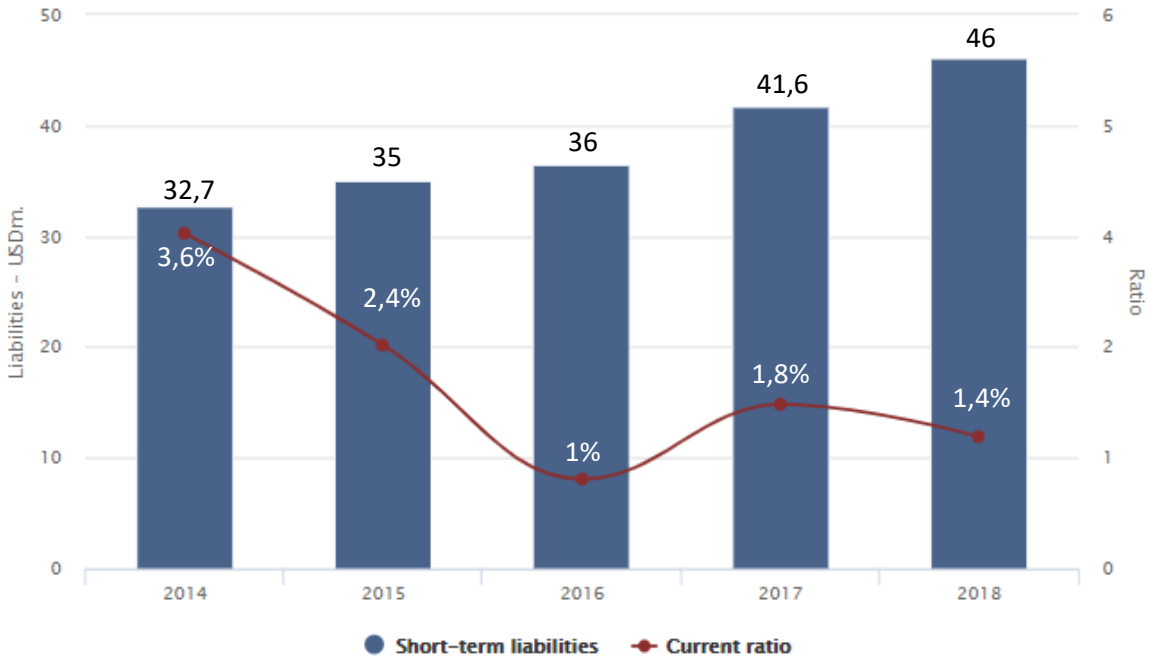
General operating cost = Operating expenses - Depreciation - Ancillary services and losses

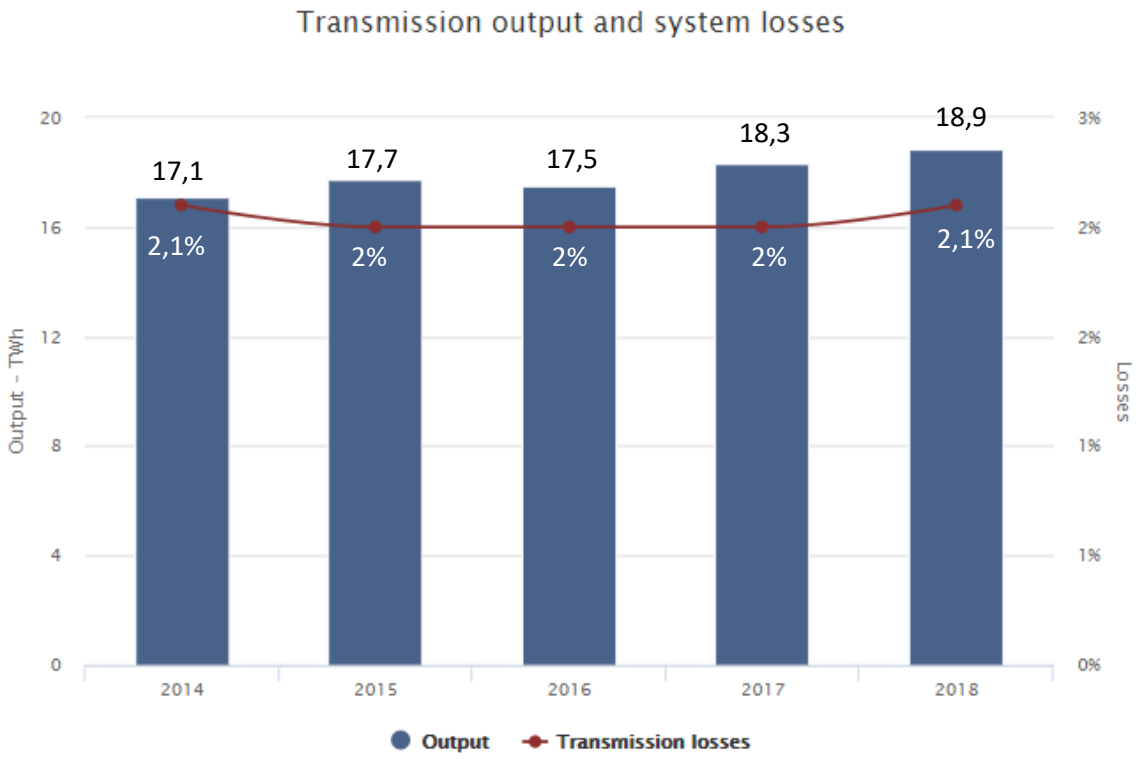


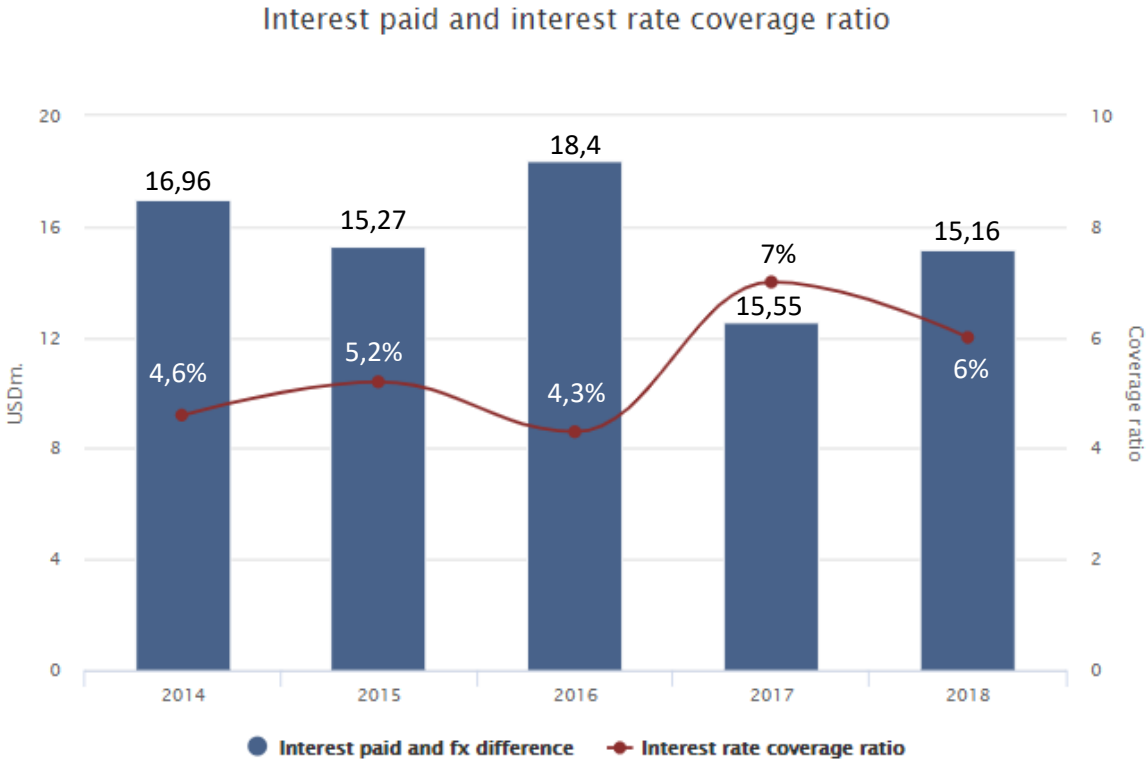
EBIT and operating profit margin



Short term liabilities and current ratio




Transmission output and system losses
Output - TWh
Losses
20
16
12
8
4
0
3%
2%
2%
1%
1%
0%
17,1
17,7
17,5
18,3
18,9
2,1%
2%
2%
2%
2,1%
2014
2015
2016
2017
2018
Output
Transmission losses


Interest paid and interest rate coverage ratio
USDm.
Coverage ratio
20
16
12
8
4
0
10
8
6
4
2
0
16,96
15,27
18,4
15,55
15,16
4,6%
5,2%
4,3%
7%
6%
2014
2015
2016
2017
2018
Interest paid and fx difference
Interest rate coverage ratio

OPERATIONS and CONSTRUCTION

Gnýr Guðmundsson Project Manager of the transmission system plan:

„Work on the transmission system plan was successful and we were happy to have the opportunity to share it and communicate with everyone on the content.“

Various changes were made during the preparation of the transmission system plan, following the rejection of the plan for 2016–2025 by the National Energy Authority. "Safe Renewable Energy for You" was the title of Landsnet's plan for the period of 2018-2027.

The main amendments to the plan included the use of scenarios for electricity consumption from the Energy Saving Committee as a baseline and the discussion for potential underground cables was greatly increased. A discussion on the future development of transmission needs was added, as well as a great deal of discussion on the economic impact of the development of the transmission system and the effect of investment on tariffs.

The development plan also underwent major changes. The scope of the project description has increased substantially on projects that will be implemented over the next three years.

Presentations were held at five locations around the country following the publication of the report. The contents were presented and participants were offered the chance to speak to the specialist team behind the preparation of the plan. This was very well received and delivered an effective review of the program. Comments were received during the review process and were promptly responded to. An updated plan was submitted to the National Energy Authority at the end of August.

Research

Magni Þór Pálsson, Research Project Manager:

"High-quality research is important to us when preparing projects and we take pride in what we do."

The research project of the year was mainly divided into two parts: System research and environmental research.

System research included an analysis of the electrical limitations of the length of underground cables in the transmission system, especially in the 220 kV systems in the SW area and in connection with the proposed reinforcement of the transmission system in the West Fjords.

We also conducted a system analysis of regional electricity systems in South Iceland, Northeast Iceland and other areas. The purpose of this type of analysis is to help us decide which projects should be carried out to support the future development of the system.

Environmental studies included the development of methods to assess the extent of avian impact on overhead lines. Several lines were assessed and data on any avian impact was collected, including camera surveillance data from several locations. Icing measurements were carried out in the traditional way, and work continued on a thermal analysis of the area surrounding underground cables with respect to different fillers.

A project was carried out in collaboration with the Institute of Economic Studies at the University of Iceland with the aim of assessing the environmental costs of overhead lines. There has been some difficulty in finding the correct methodology to evaluate this but we hope that the results of this project will provide valuable input.

We have worked in close cooperation with other international transmission companies, especially in the Nordic countries. Research collaboration with universities, research institutes and other energy companies is extremely important for the company.

Preparation projects

Árni Jón Elíasson, Investment Project Manager:

"There are exciting times ahead and the big projects in preparation are all designed to strengthen the system and move us towards a rapidly growing electrical future."

There were more than 30 active preparation projects in 2018 and 13 reached completion. These include changes to substations at Eyvindará, Eskifjörður and Stuðlar in Reyðarfjörður, as well as various cable projects, which are all part of the voltage increase (to 132 kV) of the so-called East Fjords Circle. Projects included the new 66 kV connection from Eskifjörður to Neskaupstaður, new switchgear at Vogaskeið by Stykkishólmur, a new outlet at Flúðir, the expansion of the substation at Fitjar in Reykjanes, the expansion of the substation at Írafoss etc.

The largest projects under construction, but not completed by the end of the year, included preparation work for the installation of a new 220 kV line between Akureyri and Hólasandur, as well as a new substation at Hólasandur in Skútustaðahreppur and the expansion of the substation in Akureyri. We also developed an environmental assessment for Sudurnes Line 2 in Reykjanes.

Unnur Helga Kristjánsdóttir, Director of Construction Project Management:

"The year was characterised by reinforcement and preparatory projects for the coming year. We are well prepared and ready to face the challenges ahead."

Investments in the transmission system amounted to just under ISK 3 billion this year, which was only about one-third of the estimated investments for the year. Changes to conditions and slower progress in planning and licensing were the main reasons for these deviations. Investments were also considerably lower than in the previous year, or approximately 40% of the investment cost of the previous year, and have not been lower since 2011.

Changes to the transmission system in the Reykjavík area

Þórarinn Bjarnason, Project Manager:

"We have been preparing for changes to the transmission system in the capital area, in connection with urban development, for some time."

The construction of two new overhead lines, Lyklafellslína Line 1, from the proposed new substation at Lyklafell to Straumsvík, and Ísallína Line 3, from the substation at Hamranes to Straumsvík, were supposed to begin this year. These projects are a prerequisite for removing Hamraneslína Lines 1 and 2 from Geithals to Hamranes and Ísallína Lines 1 and 2 from Hamranes to the Straumsvík smelter.

The committee on environment and natural resources revoked the development licence from Hafnarfjörður at the end of March, which delayed construction work. Preparations subsequently began for Hamraneslína Lines 1 and 2, on a section about 2 km in length, closest to the Hamranes area in Hafnarfjörður.

Krafla Line 3

Krafla Line 3 will strengthen the transmission system. Preparation work for the construction project has been on-going for many years. The National Planning Agency's environmental impact assessment was completed at the end of 2017. Final changes to the General Plan for the municipalities are expected in the first months of 2019. The municipalities should subsequently grant the necessary construction permits and construction could begin in the spring. Preparation measures this year included tender design and licensing and agreements were made with all landowners regarding the line route.

Krafla, Þeistareykir and Bakki

Construction work on the connection from Þeistareykir Geothermal Power Station to the industrial area at Bakki in Húsavík was completed in 2017. Various finishing work was carried out on substation structures at Þeistareykir, Bakki and Krafla, as well as Kröflulína Line 1 and Þeistareykjalína Line 1.

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, 2.26 km underground cable between Grundarfjörður and Ólafsvík was completed in 2018. Design work and purchasing for the new substation in Ólafsvík (in 2018) began and construction is expected to reach completion in 2019

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 II to the transmission system. Control equipment was renewed at the beginning of the year and the power station was commissioned in June, 2018.

New connection to Sauðárkrókur

Sauðárkrókur is currently connected to the transmission system via a single 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. 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.

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 Breiðadalur Line 1, which has been problematic with regards 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.

A new substation in Hvolsvöllur

The construction of a new substation in Hvolsvöllur, to replace the substation built in 1957, has been in preparation for several years. Construction on a new substation in Hvolsvöllur began during the year and was mostly completed. The installation of electrical equipment began at the end of the year and the station is expected to come online in the spring of 2019.

Connection of the data center at Hnjúkir

The new connection point Hnjúkir was added to the transmission system due to the connection of a new data center in the vicinity of Blönduós. A new, 3 km long, 132 kV underground cables, Laxárvatn Line 2, was laid from substations at Laxá Lake to an industrial area at Hnjúkir. A new switching plant at Laxárvatn and transformer at Hnjúkar were also taken into use. The preparation and construction period was short but the structures came online just before the end of the year.

Fitjar

The substation at Fitjar was expanded during the year due to the increased electricity consumption of data centers in the area. HS Veitur added two transformers and oversaw the expansion of the building, while Landsnet provided and arranged the installation of 132 kV switchgear, as well as the associated control and protective equipment. The equipment came online in September.

Voltage increase in the East

The load on the transmission system in the East of Iceland has increased markedly following the electrification of the fishmeal factory in the area. To respond to this, Landsnet plans to increase the voltage on regional lines and to substations in the area.New substations will be built at Eskifjörður and Eyvindará and changes will be made to the Stuðlar station. The 2 km long Eskifjörður Line 1 underground cable will subsequently be laid by the substation at Eyvindará. Other connected projects included design work, tender documentation and license issues. The tenders for the main components of the project should be ready at the beginning of 2019.

Eskifjörður – Neskaupstaður

Neskaupstaður is connected by one transmission line, Neskaupstaður Line 1. Plans to double the connection are underway. A new 17 km long, 66 kV underground cable, Neskaupstaður 2, will be installed between Landsnet's substations at Eskifjörður and Neskaupstaður, both of which will be expanded. The relevant design work, tender documentation and licensing issues were carried out during the year. The tenders for the main components of the project should be ready in the spring of 2019.

Substation in Hnappavellir

Rarik has requested a new delivery point on the local line in Öræfa- and Suðursveit due to the rapid development of tourism in the area. The proposed substation will be built in collaboration with Rarik. The relevant preparation work, tender documentation and licensing issues were carried out during the year. The tenders should be ready by the beginning of 2019.

The operations, maintenance, response and emergency services of the online service

Smári Jónasson, Director of Network Services

"Krumlan, was taken into use this year, a tool that has made a huge difference to operations."

Construction work was carried out in, among other places, Northeast Iceland, Krafla, Þeistareykir and Bakki, as well as Hnjúkir in Blönduós. In addition, network services were utilised in most other construction projects during the year in the form of voltage surveillance, acceptance tests and switchgear control.

There were numerous operational projects, including the renewal of GIS equipment in Hrauneyjar, as well as the renewal of control equipment. Remote control stations underwent considerable renewal and transformers were checked. Suspension equipment at Kraflalína Line 2 also underwent considerable renewal, as well as maintenance on other lines. Considerable general maintenance work was also carried out as a result of the renewal or repair of older equipment.

There was outages and disturbances on the Suðurnes Line 1, as a result of lightening, which had a wide impact on the whole area. There was also a failure on the Sultartangi Line 3 in Hrunaafréttir in February, which was very difficult to access and it took two days to deliver equipment to the site. There were approximately 30 other outages, the main causes of which weather conditions, lightening were and degeneration. Approximately 40 outages occurred in substations and most as a result of equipment failure.

Network services have worked systematically to improve the efficiency of the preparation and planning of projects, as well as continuing to make projects more high standard and transparent.

Great progress was made this year when new crane equipment was taken into use, which will be utilised in line maintenance and repairs. The device is the John Deere Forwarder type and is the first of its kind in the world that John Deere and crane manufacturer Palfinger collaborated on. Our employees in network services chose the equipment after examining similar varieties in Norway. The machine has eight wheels and is therefore well suited to skimming over delicate land and the oil used in the crane's oil system is a special and environmentally friendly variety.

Older vehicles were renewed during the year and the first electric car was taken into use and used for maintenance work at substations.
The Construction and Operations division and Network Services have employed six University students or electrical engineering students in recent summers. They were given the opportunity to acquaint themselves with the operations of the divisions.

The division also employed 27 summer employees to see to ground work at substations and various company buildings, as well as many other smaller projects.

Operation of the transmission system

Ragnar Guðmannsson Director of the Control Centre

"We place a great deal of emphasis on training to improve our response to disturbances and to quickly assess the constantly changing circumstances of the electricity system. We also focus on the mental wellbeing of our staff. Training yourself to be mentally prepared when something happens is very important. The many developments that have taken place in local system defences and wide area control systems have helped a great deal. "

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 maintenance, ensuring secure development, and minimising curtailments following disturbances to the system.

The operation of all IT systems, both for the operation of control centres and office systems throughout the company is in the hands of the system management division as well as the development of smart network solutions.

PERFORMANCE REPORT 2018

Information technology and telecommunications

Ásmundur Bjarnason Director Information Technology:

"An important update of the General Electric energy management system was completed this autumn and took a total of 18 months. The project was completed on time and within budget and its success was noted by users of the system across Europe. These updates are generally complex and high-risk. The update has resulted in significant improvements, especially with regards to the security environment of the system, as well as the potential we have to manage the system. "

Preparation for the Green Light Project

We were successful in our efforts to prepare for maintenance work and repairs, which we called "the Green Light Project". We now have processes and measurements in place in daily operations that ensure that all works are prepared according to Landsnet's procedures helping to improve personal and system security.

Smart Grid control system

New Smart Grid control systems, developed by the European research project MIGRATE, were introduced this year and we delivered a report on this large research project, outlining the main research results, focusing on the wide area control system. Several customers were involved in the introduction of the systems, including Ísal, Norðurál, Landsvirkjun and fish smelters in East Iceland. Changes were also made to the smart network telecommunication system and the response time was reduced by half (now about 100 m / sec).

System testing and commissioning in the Northeast

A great deal of work was devoted to system tests due to the commissioning of the Þeistareykir Geothermal Power Station and the connection of new transmission facilities in Northeast Iceland, from Krafla to Bakki. The Systems Operations Division was also closely involved with the increased delivery to Fitjar. Testing was successful and received international attention due to the specificity of the Icelandic system. The results were presented in an article presented to the Geothermal Resources Council.

Forecasting models for the Control Centre

The project "Volva" began this autumn and focuses on the development of a forecasting model for the Control Centre. The aim is to provide the Control Centre with a forecast of electricity consumption, production and power flow in the system for the next 1-3 days, at any given time. This could aid preparation measures and improve risk management even more efficiently.

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.

Our part in the project is the development and preliminary testing of new wide area control systems to address the problems of low inertia power systems.

The first part of the project involved the development of a new philosophy for widespread use and utilising the infrastructure of the broadband system that Landsnet has been developing over the past decade. We asked stakeholders to test these new controls in the second part of the project. These included load steering at smelters, faster hydropower turbine shutdowns and the quick release of curtailable energy users. The aim is to demonstrate that the challenges that accompany the increased proportion of renewable energy sources can be addressed by power electronics, by designing and developing rapid wide area control systems to increase stability, operational security and flexibility in power systems.

The results of our part of the project have been promising. They show the benefits of these controls and how operational security and stability have been enhanced by their emergence. The results have attracted a lot of attention abroad, and were presented at the Cigre conference in 2018. Landsnet will continue to develop this project in the coming months and will bring more stakeholders into the loop to further improve the operational security of the system.

Health and Safety and Quality Management

Halldór Halldórsson Safety Manager:

"We are proud of the fact that there were no absence-related incidents this year. We promote a safety culture within the company and our success rate in recent years is constantly rising. ”

We want to achieve a zero accident status in our operations. Safety issues are always a priority and we are committed to ensuring that our employees return home every day with a healthy body and mind.

Certified safety management system

Landsnet has a certified 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 place 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.

Success is assured by working together

Health and Safety training focuses on the risks faced by employees. The focus of the year has been fall protection, arc protection and the locking and harnessing of hazardous energy. Training was also provided for the safe preparation of work projects.

Safety culture in new construction

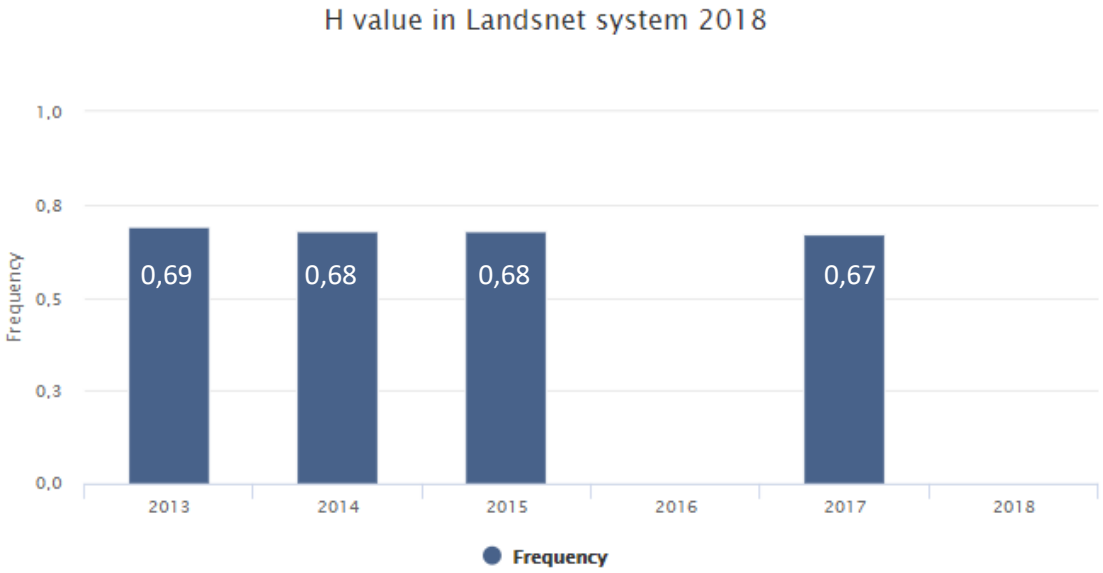
New projects were carried out during the year, with the aim of supporting the safety culture of employees. We reviewed and reissued our safety policy, along with policies and initiatives to support the policy. These include an educational program based on risk assessment and the exposed risks of employees. Courses and education related to security issues were also held. Safety culture is a learning culture.

Landsnet –key infrastructure in society

A new emergency management plan was issued this year, based on the SÁBF public defence system. Landsnet's representative took a seat on the National Security Council's contact group that works with the government in implementing national security indicators. Close co-operation and interaction between government and stakeholders, as well as regular practice responses, are part of the critical work of emergency management.

International security co-operation

Nordisk Berednings Forum (NordBER) is a co-operation forum for security issues pertaining to electricity transmission companies and energy organisations in the Nordic region. Iceland‘s representative has now taken on the lead role of the Council for the next two years.



Engilráð Ósk Einarsdóttir, Director of Quality Assurance and CSR:

"We are very aware of the importance of safe access to electricity and rapid responses to disturbances. We are constantly working to improve operations and reduce risks. ”

A risk assessment of the entire operation was carried out in 2018. Risks related to quality documentation were subsequently defined to ensure that information could be obtained on how to manage risks at all times.

An increased emphasis was placed on LEAN methodology this year with regard to improvement projects. Efforts were made to define projects using this method and work in batches. Work continued on improvements in table meetings and the results can be seen in the work environment, as these projects show projects that are ongoing at each time.

Quality Policy

The quality policy was reviewed and the priorities for quality issues were defined for the period up until 2020, as well as setting measurable goals in operations, which are reviewed with regards to results and improvements.

Certifications

We received certification for the new Quality Management Standard ISO 9001: 2015 and the Environmental Management Standard ISO 14001: 2015 – the main changes between the standards are that more emphasis is placed on risk and stakeholder analysis, change management and, not least, the importance of management leadership.

Independent parties visit us twice a year to audit our management system. We have an integrated management system that includes quality, environmental and electrical safety management and work environment safety. Integrated management of these issues results in better coordination of work processes, as well as more effective management reforms and achieving the company's goals.

International management standards are used in operations and are certified according to international standards ISO 9001: 2015 Quality management, ISO 14001: 2015 Environmental management, OHSAS 18001: 2007 Health and Safety and occupational health and safety together with electrical safety. These standards ensure that consideration is given to improvements, environmental issues and health and safety issues in all construction projects, whether within our own operations or those of contractors.

Social Responsibility

We demonstrate social responsibility by being responsible for the transmission system.

In 2018, we issued and approved our social responsibility policy. The policy is divided into three categories: Responsible corporate practices, society and environment. The main focus of the society category is gender equality wage issues and that the development of the electricity system remains in line with the needs of society.

Responsible corporate practices include dialogue with stakeholders and responsible practices as well as efficient fund management. Environmental issues include the development of a plan to support the company in becoming carbon neutral by 2030 and that the company‘s carbon footprint is measured in accordance with the objectives of the Paris Agreement.

Finishing work after construction and maintenance work has been completed on structures should be exemplary and environmental improvements should be worked on continuously.

No environmental accidents

No serious environmental incidents occurred in 2018, but improvements are continuously being made.

Environmental assessments

Two environmental assessments were carried out during the year. These assessments are carried out on the completion of all investment projects, as part of the tender documents. Assressments were carried out in collaboration with stakeholders, including representatives of regulatory bodies, landowners and municipalities.

Green accounts

Green Accounts were introduced by the company in 2018 to give us a better overview of the environmental impact of our operation and to facilitate monitoring on various aspects of our operations.

Carbon neutral Landsnet in 2030

One of our main policy goals is to be carbon neutral in 2030. We launched the Landsnet carbon-free by 2030 action plan in 2018, based on our policy objectives. The aim of the project was to assess the current status of factors included in the calculation of our carbon footprint, to analyse which emission factors are not specified, and to prepare an action plan on how we will become a carbon-neutral company by 2030.

The company's key environmental impacts were identified during the year and work groups were created to develop ideas on how the company could move towards carbon neutrality. Policy objectives were then developed to purposefully reduce the amount of carbon dioxide generated by operations and to increase sequestration measures.

Factors that affect the carbon footprint were analysed according to Scope 1, 2 and 3. The Greenhouse Gas Protocol Standard separated greenhouse gas emissions into three categories: Scope 1, Scope 2 and Scope 3. Scope 1 is direct emissions from operations and includes emissions due to operations owned or managed by Landsnet.

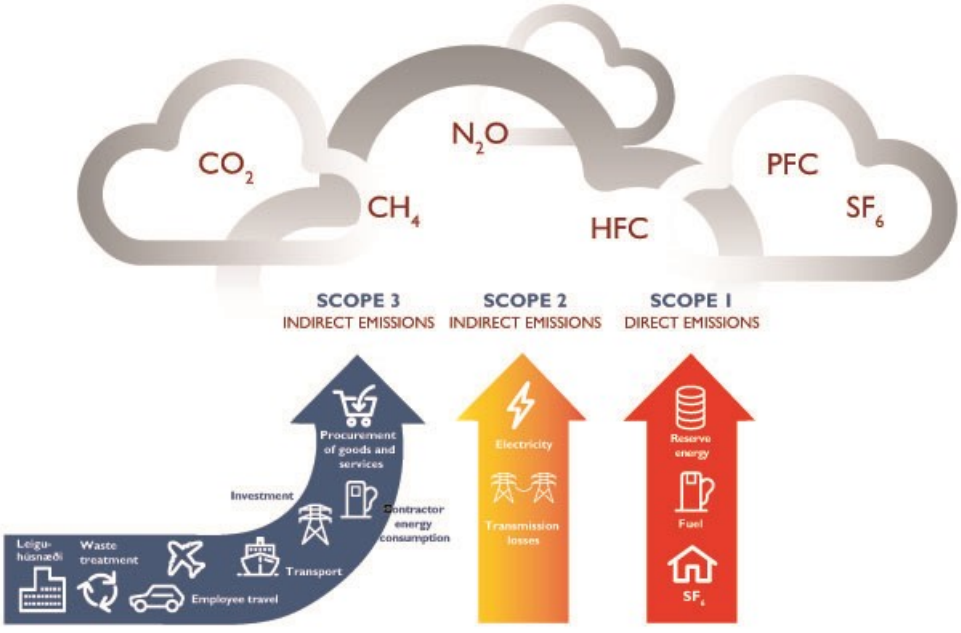
Landsnet‘s carbon footprint 2018

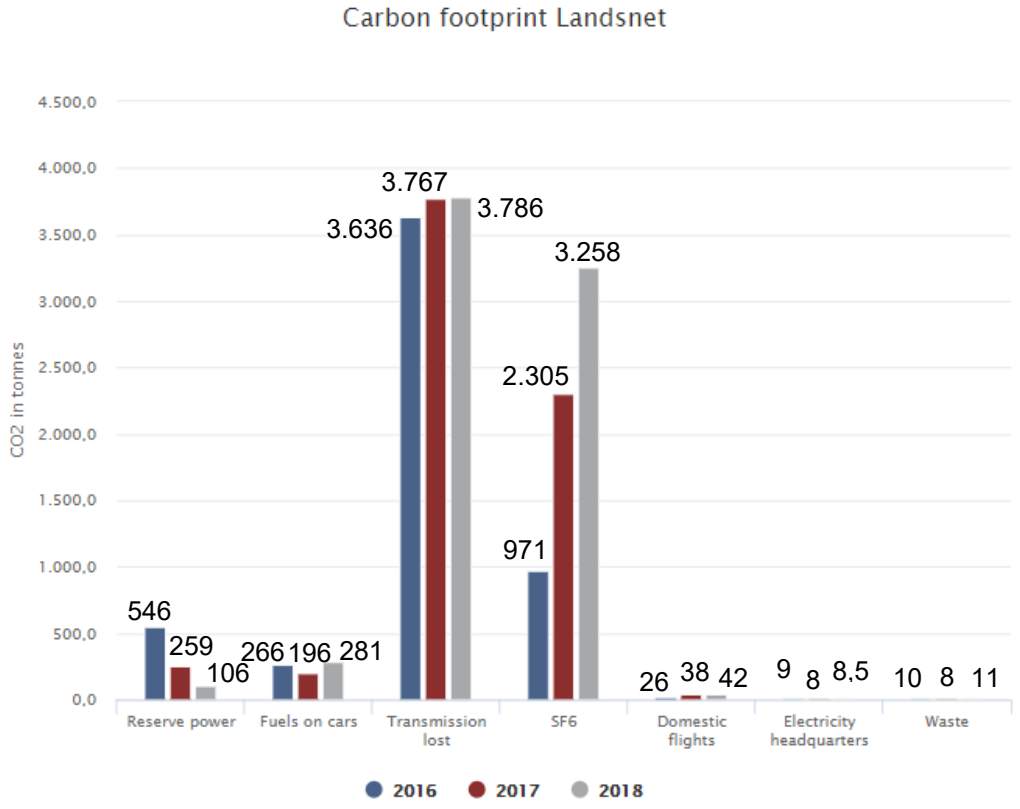
Our carbon footprint increased by 16% between 2017 and 2018, the CO2 equivalent in 2018 was 7,493 tonnes of carbon dioxide (CO2), compared to 6,451 tonnes in 2017. The largest emission factor in Scope 1 is the leakage of the isolation gas sulphur hexafluoride (SF6), which is used as an insulator for electrical equipment in substations. The leakage was much higher in 2018 than in 2017, which can be attributed to a disturbance at one of the company's substations at the beginning of the year. The production of reserve power decreased during the year due to fewer disturbances in the transmission system. Fossil fuel consumption decreased slightly between years.

Transmission losses are the largest emission factor in scope 2. In 2018, transmission losses increased by 7% compared to the previous year, which can mostly be attributed to an increase in electricity transmission between years. Transmission losses accounted for 1.96% of all transmission in 2018, compared with 2.15% in the previous year.

Waste classification was successful during the year as 92% of all waste was managed, compared with 81% in the previous year. However, waste increased between years due to projects undertaken during the year. Cooperation with project participants was good and efforts were made to sort all waste generated by the projects.

Measures were taken during the year to improve waste issues by examining how waste management could be improved and made simpler and more accessible. A presentation was held for employees to inform them on waste management and to encourage waste classification. The number of domestic flights in 2018 was similar to that of 2017.





The carbon footprint of the transmission system

An analysis of the carbon footprint of the transmission system was completed during the year. The analysis was carried out using the lifecycle analysis (LCA) methodology covering all aspects of the production, installation and operation of the transmission system over its lifetime, as well as disposal measures. The result of the LCA shows that the carbon footprint of the transmission system is about 0.9 grams CO2-equivalents / kWh, and almost half of this can be traced to transmission losses on lines during the operating period. The analysis will be useful for environmental management, eco-friendly design and procurement, as well as providing information that will benefit other parties in Iceland.

Business

Svandís Hlín Karlsdóttir, Head of Business Services and Development:

"There is a sharp increase in connection requests as well as changing needs. This has undoubtedly been a challenge for the company as we balance the need to speed up the resolution of cases and contracts while maintaining our goals for quality of service and electricity security. "

There has been a sharp increase in requests regarding connections to the transmission system. We have received more inquiries in the first six months of the year than we did in the previous three years.

Generally speaking, incoming requests have increased fivefold since 2016. These include requests for increased power to existing customers, requests for participation in the management of the transmission system and the connection of smaller users and wind power to the transmission system.

Our customer base is expanding and is more diverse than before. Two new companies joined our customer base in 2018: Orka heimanna, which sells electricity to the public and Etix Everywhere Iceland, which runs a data center in Blönduós.

A recent survey showed obvious improvements to our services and Gallup's database shows that we are well above average when compared with other companies.

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

Distributors	Producers	Energy investive users
RARIK	Landsvirkjun	ADC
HS Veitur	ON	Verne Holding
Norðurorka	HS Orka	TDK Foil Iceland
Veitur	Orkusalan	ISAL
Orkubú Vestfjarða	Fallorka	Alcoa
Rafveita Reyðarfjarðar	Íslensk orkumiðlun	Elkem
	Orka Heimilanna	Norðurál
		PCC

Grid codes

Two Grid Codes came into effect in 2018: Grid Code D1, which outlines Terms of Technical Requirements for Power Generating Modules, including important adaptation measures for processing units, e.g. wind turbines and Grid Code D3 Terms on the system contribution surcharge.
Work continued this year on increased user access to system services to increase market competitiveness and transmission flexibility. Grid Code drafts have undergone a review process and the comments received from our customers are being processed. The process has taken longer than expected, but we expect to send the final Grid Codes to the National Energy Authority for confirmation in 2019.

Tariff

Work on the revision of the tariff structure began in 2017 and the first phase reached completion this year. The first phase focused on communication with our customers on the various opportunities and challenges pertaining to the current tariff structure. Customers were asked if they felt that the current structure serves its purpose and is sufficiently flexible for future challenges. Preparation for the second phase, which focuses on prioritising projects with our customers, is underway.

The electricity market

One of our goals is to establish an electricity market. We began our journey this year by hiring a foreign consultant to analyse the challenges faced by the Icelandic electricity market and subsequent realistic market solutions. The next step will include interviews with electricity retailers with the aim of creating a solution that suits the needs and requirements of the electricity market.

Guarantees of Origin

Ragnar Sigurbjörnsson specialist / sales measurements:

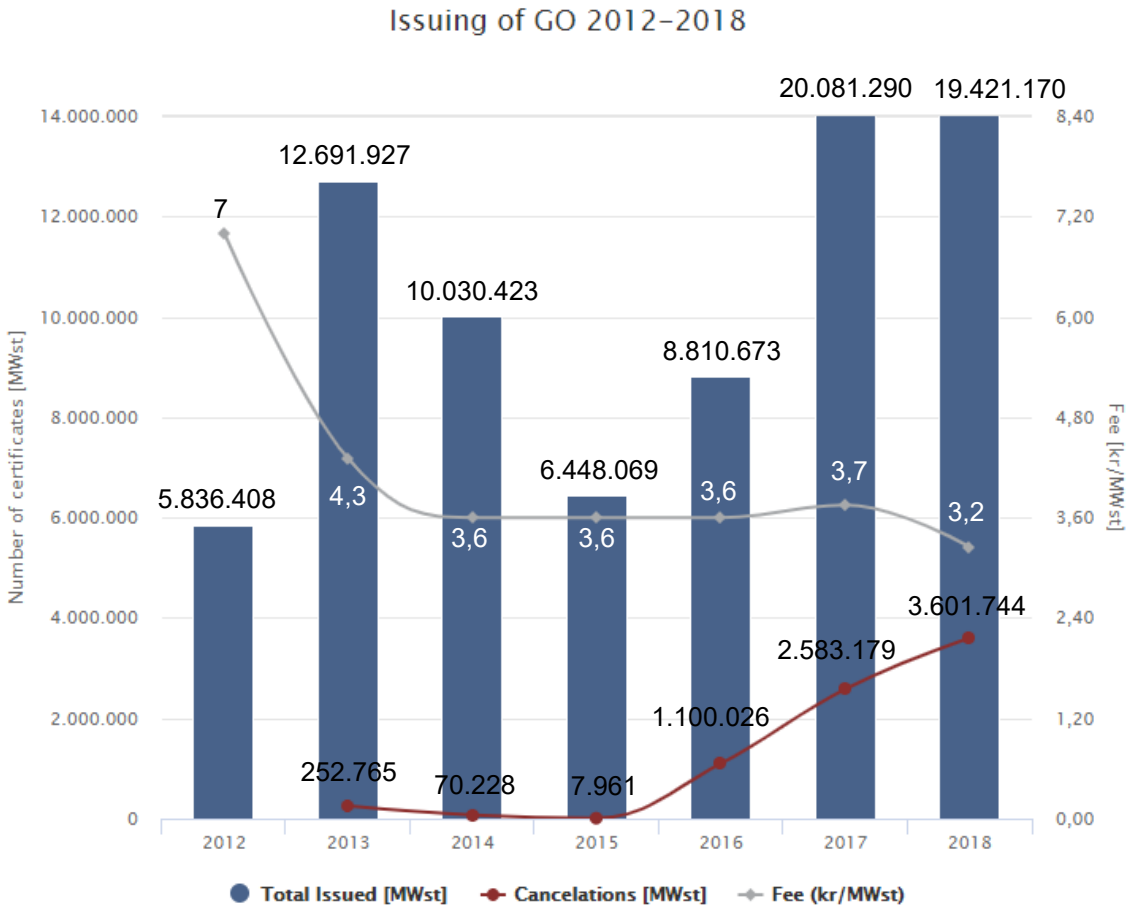
"There has been a sharp increase in the afskráningu of Guarantees of Origin in Iceland, which means just one thing - greener accounts for Icelandic households."

The issuance of Guarantees of Origin has grown rapidly since 2015 and nearly all energy production in Iceland has been guaranteed for the last two years (nineteen million certificates per year).

The Mjólká Power station and turbine 2 at Þeistareykir joined this group this year. There have also been a lot of requests regarding the certification of smaller power stations this year, which is probably due to the increased value of Guarantees of Origin.

The current structure of the tariff has affected factors including competition for issuance and delisting in Iceland and abroad. að því viðbættu hefur kostnaður okkar vegna útgáfu upprunábyrgða verið að breytast og endurspeglun í gjaldskrá því ekki gagnsæ. We have subsequently been working on changing tariffs pertaining to Guarantees of Origin this year, which will take effect as of the 1st of April, when a new issue period begins.

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



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."

Steinunn Þorsteinsdóttir, Public Relations Officer:

"Picking up the phone and answering questions directly is important to us. Being present when people need information and showing initiative when it comes to knowledge dissemination is all part of the work we do. You see, we have a story to tell."

A great deal of effort was put into projects on defining knowledge dissemination and emergency response plans. A plan was also developed to review response and notifications were pre-registered to shorten the response time. Work continued on increasing the number of users on the Landsnet app, and social media, Facebook, Instagram and LinkedIn were used to provide information and to exchange views.

Landsnet often appeared in the news this year. Positive news from the company has increased considerably between years, and negative news has decreased.

Many people made the effort to visit us at Gylfaflöt, including students, NGOs and our neighbors in Grafarvogur.

Elín Sigríður Óladóttir samráðsfulltrúi:

"In general, projects relating to consultation have been successful. Landsnet has taken the initiative in creating a forum for honest discussions characterised by openness, mutual respect and a willingness to cooperate."

In 2018, Landsnet was involved in extensive consultation with stakeholders and society as a whole. Project committees are active in three regional projects, Kröflulína Line 3, Hólarsandlína Line 3 and Suðurnes Line 2, and the establishment of two further project committees is underway. The main participants in these committees are key stakeholders (with the exception of landowners) who meet on a regular basis.

The work carried out by these committees has been successful. Fifteen meetings have been held and 6 excursions have been completed. Information and presentation meetings have been held with landowners for the projects mentioned above, both in the municipalities and in the capital area. Landsnet's stakeholders' council was established in 2018. Its main purpose is to create a forum for discussion between stakeholders in society on the development of the electricity system.

Knowledge dissemination measures have been various. We are active on Facebook and Instagram and our website has specific areas providing information for each project, as well as information on the activities of the stakeholder group.

This work will continue in 2019 and an emphasis will be placed on strengthening and supporting what is already in place and achieving broader consensus.

Transmission

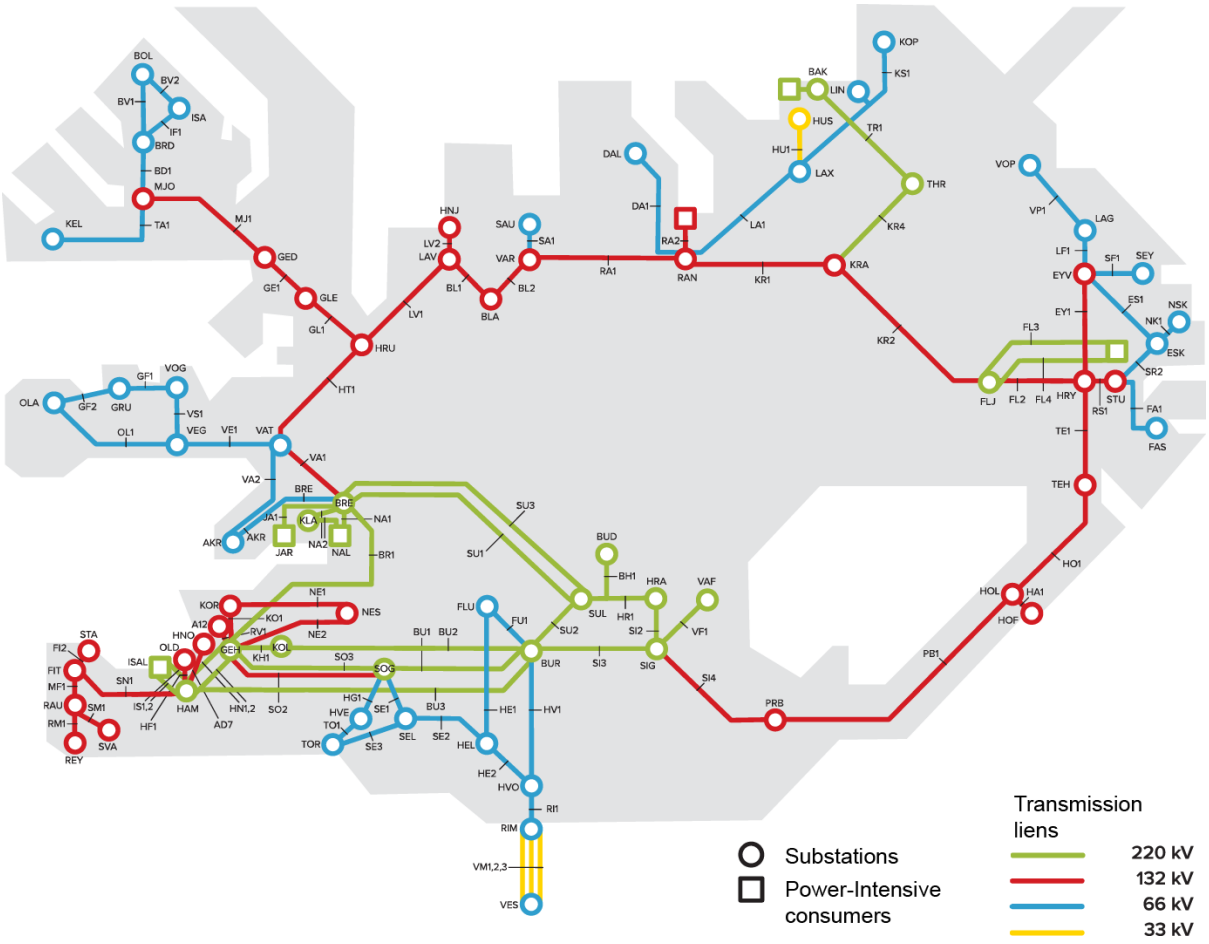
See navigator

The grid 2018

"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, 2018

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.

Transmission liens at year end, 2018

Voltage [kV]	Line	KKS code	First year in service	Connected substations	Length [km]	Of wich undergr. [km]
220	Brennimelslína 1	BR1	1977 / 2006	Geithals - Brennimelur	58,6	
	Búðarhálslína 1	BH1	2014	Búðarháls - HR1 (Langalda)	5,6	
	Búrfellslína 1	BU1	1969	Búrfell - Írafoss	60,8	
	Búrfellslína 2	BU2	1973	Búrfell - Kolviðarhóll	86	
	Búrfellslína 3 (byggð að hluta fyrir 400 kV)	BU3	1992/1998	Búrfell - Hamranes	119	
	Fljótsdalslína 3 (byggð fyrir 400 kV)	FL3	2007	**Fljótsdalur - Reyðarfjörður**	49	
	Fljótsdalslína 4 (byggð fyrir 400 kV)	FL4	2007	**Fljótsdalur - Reyðarfjörður**	53	
	Hamraneslína 1	HN1	1969	Geithals - Hamranes	15,1	
	Hamraneslína 2	HN2	1969	Geithals - Hamranes	15,1	
	Hrauneyjafosslína 1	HR1	1982	Hrauneyjafoss - Sultartangi	19,5	
	Ísallína 1	IS1	1969	Hamranes - Ísal	2,4	
	Ísallína 2	IS2	1969	Hamranes - Ísal	2,4	
	Járnblendilína 1	JA1	1978	Brennimelur - Járnblendiv.	4,5	
	Kolviðarhólslína 1	KH1	1973	Kolviðarhóll - Geithals	17,3	
	Kröflulína 4	KR4	2017	Krafla - Þeistareykir	33	
	Norðurálslína 1	NA1	1998	Brennimelur - Norðurál	4,2	
	Norðurálslína 2	NA2	1998	Brennimelur - Norðurál	4	
	Sigöldulína 2	SI2	1982	Sigalda - Hrauneyjafoss	8,6	
	Sigöldulína 3	SI3	1975/2015	Sigalda - Búrfell	36,8	
	Sogslína 3	SO3	1969	Írafoss - Geithals	35,8	
	Sultartangalína 1	SU1	1982	Sultartangi - Brennimelur	121,6	
	Sultartangalína 2	SU2	1999	Sultartangi - Búrfell	12,5	
	Sultartangalína 3 (byggð fyrir 400 kV)	SU3	2006	Sultartangi - Brennimelur	119	
	Vatnsfellslína 1	VF1	2001	Vatnsfell - Sigalda	5,8	
	Þeistareykjalína 1	TR1	2017	Þeistareykir - Bakki	28,3	
				Total 220 kV	917,9	0,0
132	Blöndulína 1	BL1	1977/1991	Blanda - Laxárvatn	32,7	
	Blöndulína 2	BL2	1977/1991	Blanda - Varmahlíð	32,4	
	Eyvindarárlína 1	EY1	1977	Hryggstekkur - Eyvindará	27,5	
	Fitjalína 1	MF1	1991	Rauðimelur - Fitjar	6,8	
	Fitjalína 2	FI2	2015	Fitjar - Stakkur	8,5	8,5
	Fljótsdalslína 2 (lína/jarðstrengur)	FL2	1978	Fljótsdalur - Hryggstekkur	25	7,0
	Geiradalslína 1	GE1	1980	Glerárskógar - Geiradalur	46,7	
	Glerárskógalína 1	GL1	1983	Hrútatunga - Glerárskógar	33,5	
	Hafnarfjörður 1 (jarðstrengur)	HF1	1989 / strengur	Hamranes - Öldugata	4	4,0
	Hafnarlína 1 (lína/jarðstrengur)	HA1	1987/2014	Hólar - Höfn	7	1,5
	Hnoðraholtslína 1(lína/jarðstrengur)	AD7	1990	Hamranes - Hnoðraholt	9,7	2,0
	Hólalína 1	HO1	1981	Teigarhorn - Hólar	75,1	
	Hrútatungulína 1	HT1	1976	Vatnshamrar - Hrútatunga	77,1	
	Korpulína 1	KO1	1974	Geithals - Korpa	6	0,3
	Kröflulína 1	KR1	1977	Krafla-Rangárvellir	82,1	
	Kröflulína 2	KR2	1978	Krafla - Fljótsdalur	123,2	0,1
	Laxárvatnslína 1	LV1	1976	Hrútatunga - Laxárvatn	72,7	
	Laxárvatnslína 2 (jarðstrengur)	LV2	2018	Laxárvatn - Hnjúkar	2,85	2,9
	Mjólkárlína 1	MJ1	1981	Geiradalur - Mjólká	80,8	
	Nesjavallalína 1 (lína/jarðstrengur)	NE1	1998	Nesjavellir - Korpa	32	16,0
	Nesjavallalína 2 (jarðstrengur)	NE2	2010	Nesjavellir - Geithals	25	25,0
	Prestbakkalína 1	PB1	1984	Hólar- Prestbakki	171,4	
	Rangárvallalína 1	RA1	1974	Rangárvellir - Varmahlíð	87,5	
	Rangárvallalína 2 (jarðstrengur)	RA2	2009	Rangárvellir – Krossanes	4,5	5,0
	Rauðamelslína 1	RM1	2006	Reykjanes - Rauðimelur	15	

Voltage [kV]	Line	KKS code	First year in service	Connected substations	Length [km]	Of wich undergr. [km]
	Rauðavatnslína 1 (lína/jarðstrengur)	RV1	1953	Geitháls - A12	3	1,0
	Sigöldulína 4	SI4	1984	Sigalda - Prestbakki	78,1	
	Sogslína 2	SO2	1953	Írafoss - Geitháls	44,4	
	Stuðlalína 1 (jarðstrengur)	SR1	2005	Hryggstekkur - Stuðlar	16	16,0
	Suðurnesjalína 1	SN1	1991	Hamranes - Fitjar	30,7	0,1
	Svartsengislína 1	SM1	1991	Svartsengi - Rauðimelur	4,9	
	Teigarhornslína 1	TE1	1981	Hryggstekkur - Teigarhorn	49,7	
	Vatnshamralína 1	VA1	1977	Vatnshamrar - Brennimelur	20,2	
				Total 132 kV	1336,1	89,3
66	Akraneslína 1 (jarðstrengur)	AK1	1996	Brennimelur - Akranes	18,5	18,5
	Bolungarvíkurlína 1 (lína/jarðstrengur)	BV1	1979/2014	Breiðidalur - Bolungarvík	17,1	1
	Bolungarvíkurlína 2 (jarðstrengur)	BV2	2010/2014	**Ísafjörður - Bolungarvík**	15,3	15,3
	Breiðadalslína 1	BD1	1975	Mjólká - Breiðidalur	36,4	0,8
	Dalvíkurlína 1	DA1	1982	Rangárvellir - Dalvík	39	0,1
	Eskifjarðarlína 1	ES1	2001	**Eyvindará - Eskifjörður**	29,1	0,3
	Fáskrúðsfjarðarlína 1	FA1	1989	**Stuðlar - Fáskrúðsfjörður**	16,7	0,4
	Flúðalína 1	FU1	1978	Búrfell - Flúðir	27,68	0,98
	Grundarfjarðarlína 1	GF1	1985	**Vogaskeið - Grundarfjörður**	35,4	
	Hellulína 1 (lína/jarðstrengur)	HE1	1995	Flúðir - Hella	34,4	1,7
	Hellulína 2 (jarðstrengur)	HE2	2015	Hella - Hvolsvöllur	13	13
	Hveragerðislína 1	HG1	1982	Ljósafoss - Hveragerði	15,4	0,1
	Hvolsvallarlína 1	HV1	1972	Búrfell - Hvolsvöllur	45,1	0,25
	Ísafjarðarlína 1 (lína/jarðstrengur)	IF1	1959/2014	**Breiðidalur - Ísafjörður**	13	3
	Kópaskerslína 1	KS1	1983	Laxá - Kópasker	83,3	0,1
	Lagarfosslína 1 (lína/jarðstrengur)	LF1	1971	Lagarfoss - Eyvindará	28	6
	Laxárlína 1	LA1	1953	Laxá - Rangárvellir	58,4	0,7
	Ljósafosslína 1 (jarðstrengur)	LJ1	2002	Ljósafoss - Írafoss	0,6	0,6
	Neskaupstaðarlína 1 (lína/jarðstrengur)	NK1	1985	**Eskifjörður - Neskaupstaður**	20,1	1,9
	Ólafsvíkurlína 1	OL1	1978	Vegamót - Ólafsvík	48,8	
	Rimakotslína 1	RI1	1988	Hvolsvöllur - Rimakot	22,2	0,1
	Sauðárkrókslína 1	SA1	1974	Varmahlíð - Sauðárkrókur	21,8	
	Selfosslína 1 (lína/jarðstrengur)	SE1	1981	Ljósafoss - Selfoss	20,3	2,7
	Selfosslína 2	SE2	1947	Selfoss - Hella	32	0,7
	Selfosslína 3	SE3	2015	Selfoss Þorlákshöfn.	28	28
	Seyðisfjarðarlína 1	SF1	1996	**Eyvindará - Seyðisfjörður**	19,6	0,5
	Steingrímsstöðvarlína 1 (lína/jarðstrengur)	ST1	2003	Steingrímsstöð - Ljósafoss	3,4	1
	Stuðlalína 2 (lína/jarðstrengur)	SR2	1983	**Stuðlar - Eskifjörður**	18,2	2,4
	Tálknafjarðarlína 1	TA1	1985	Mjólká - Keldeyri	45,1	
	Vatnshamralína 2	VA2	1974	Andakílsvirkjun - Vatnshamrar	38,2	1,4
	Vegamótalína 1	VE1	1974	Vatnshamrar - Vegamót	63,8	
	Vogaskeiðslína 1	VS1	1974	Vegamót - Vogaskeið	24,8	
	Vopnafjarðarlína 1	VP1	1980	**Lagarfoss - Vopnafjörður**	58	
	Þeistareykjalína 2 (jarðstrengur)	TR2	2013	**Þeistareykir - KS1 (Höfuðreiðarmúli)**	11	11
	Þorlákshafnarlína 1	TO1	1991	Hveragerði - Þorlákhöfn	19,5	0,2
				Total 66 kV	1021,2	112,7
33	Húsavíkurlína 1	HU1	1948	Laxá - Húsavík	26	0,1
	Vestmannaeyjalína 1 (sæstrengur)	VM1	1962	Vestmannaeyjar - Rimakot	16	16
	Vestmannaeyjalína 3 (sæstrengur)	VM3	2013	Vestmannaeyjar - Rimakot	16	16
				Total 33 kV	58	32
				Total	3333	234

Substations at year end, 2018

Substations at year end, 2018

Substations	KKS code	Co-owner	Voltage (kV)	First year in service	No. of switchyard bays	Number of transformers
Aðveitustöð 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	9/4	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	1990/2018	8	0
Fljótsdalur	FLJ		220/132	2007	10/4	2
Flúðir	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
Hnjúkar	HNJ		132/33	2018	1	1
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
Keldeyri	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	1977/2017	3/4	1
Lagarfoss	LAG	RA	66	2007	5	0
Laxá	LAX		66/33	2003	6/1	1
Laxárvatn	LAV	RA	132	1977/2018	4	0
Lindarbrekka	LIN	RA	66	1985	1	0
Ljósafoss	LJO	LV	66	1937	6	0

Substations	KKS code	Co-owner	Voltage (kV)	First year in service	No. of switchyard bays	Number of transformers
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	1974/2001	8/7	2
Rauðimelur	RAU		132	2006	3	0
Reykjanes	REY	HS	132	2006	3	0
Rimakot	RIM	RA	66/33	1990	3/5	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