PÓST- OG FJARSKIPTASTOFNUN

ANNUAL REPORT 2020

FST(21)-04

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A word from the managing director

Postal affairs, universal service and a new postal regulator

In 2020, Íslandspóstur was appointed a universal service provider on the basis of the new Postal Act. The appointment obliges the company to provide postal services nationwide. There is a market failure in certain parts of the country, where there are no grounds to provide postal services on market terms. The government must therefore subsidise the services, currently in the amount of ISK 500m each year, to ensure comparable service for all citizens. In mid-2021, monitoring of postal activities was transferred to the Institute of Regional Development. The authorities and market participants will have the demanding job of continuing to ensure good postal services throughout the country in the most cost-effective way possible. The PTA wishes all concerned parties the best of luck in carrying out this difficult task.

NIS enters into force

On 1 September 2020, a new act on cyber and information security for important infrastructure entered into force. The PTA plays an important role in enforcing these laws. First, the Administration is tasked with operating a computer emergency response team, named CERT-IS. Second, the Administration is tasked with acting as a coordination authority in establishing the monitoring of security management systems for important infrastructure. Third, the Administration monitors the network security of telecommunications, digital infrastructures, and electronic service providers. These new tasks are extensive in scope and the Administration's activities are expected to double over the next 3 years as a result. Efforts have been made to develop activities, recruit and train staff, establish procedures, adapt facilities, etc. This is a long-term project and full preparations are expected to take up to 3 years. The activities are implemented via two organisational units, the computer emergency response team, CERT-IS, and "Digital Security". The role of CERT-IS is, on the one hand, to work with parties within the network jurisdiction on analysing the state and development of network security to prevent cyber incidents, and, on the other hand, to provide assistance and to coordinate actions to minimise damage and expedite restoration when cyber incidents occur. The role of "Digital Security" is, on the one hand, to act as a coordination authority in implementing monitoring of information security management systems for important infrastructures and, on the other hand, monitoring the part of the network jurisdiction covered by the Administration (telecommunications, digital infrastructures, and electronic markets). The activities of CERT-IS are kept separate from other activities, as parties within the network jurisdiction should be able to work without any reservations with CERT-IS when cyber incidents occur.

Cyber security incidents

The three types of cyber attacks that are most prevalent these days are distributed denial-of--service (DDoS) attacks, ransomware, and phishing. DDoS attacks can disrupt services and are a potential threat to the Icelandic Information Society. Coordinated action will probably have to be undertaken in Iceland in order to defend against such attacks. Ransomware attacks, where computer systems are attacked, data encrypted and made inaccessible, and ransom is demanded may result in considerable losses for the victims and even destroy entire companies. The purpose of phishing is to trick people into handing over information such as credit card numbers and passwords, which the criminals then use for financial gain. It is important to educate the public and staff about network security, just as has been done for traffic safety in recent years.

A storm causes service outages

A powerful storm passed over Iceland in December 2019, causing a power failure in North Iceland that lasted for over 70 hours. Most telecommunications structures withstood the storm, but there were no telecommunications in large areas due to the power failure. The authorities responded, with the Telecommunications Structural Fund providing funding to boost reserve power for mobile network towers across the country. The storm sparked a discussion on the importance of telecommunications, particularly mobile networks, for public safety. Electronic communications legislation does not specify that certain telecommunication services should be considered emergency services for the public. The safety level of telecommunications networks is generally determined by market participants in accordance with the general provisions of electronic communications regulations, but they must demonstrate that their systems meet general and reasonable requirements as well as the services that have been promised. There is no minimum duration of reserve power stipulated by law, for example, nor do the laws specify whether emergency routes should be present, and the same goes for various other factors related to the resilience of the networks in the event of disaster. The position of telecommunications is not unique as the service level of payment services, for example, is dependent on a similar regulatory framework in this regard. Our society is increasingly dependent on electronic services and telecommunications. Without electricity, telecommunications, and active electronic services, society will cease to function. In light of this, it may be appropriate to reconsider the general requirements for the resilience of socially important services.

Digital government services for all

Likewise, it may be time to reconsider the public's right to access telecommunication and internet services. Services are increasingly provided online to increase cost efficiency and service levels. Government authorities have taken an active part in this development and this is now practically the only way for citizens to access various services. In some countries, access to internet service is defined as a part of the minimum services that should be ensured for all citizens. In view of the easy access to telecommunications in Iceland, extensive internet use, and the effort to move government services online, it is important to ensure that all citizens can use such services regardless of their residence, economic status, social status, or age, thus making online government services actually accessible to all.

Reports of the sale of telecommunication infrastructures

Reports of plans to sell parts of the infrastructure out of electronic communications companies surfaced during the year. Agreements were signed regarding the sale of NOVA and Vodafone's inoperative infrastructure. These are mainly facilities for mobile network equipment, e.g. towers and housing facilities. Síminn Group has also announced that the sale of Míla is under consideration. Míla's telecommunications network is very extensive and includes core networks all over the country, local loops that connect almost all homes and workplaces, and a number of transmitting stations that house Síminn's mobile networks as well as the radio network for Síminn's mobile networks. There are also, in addition to this, various kinds of active equipment that enable the company to provide services on top of the network and sell them wholesale. There has been some discussion of the possibility of foreign entities purchasing Míla. The Electronic Communications Act, as such, does not provide a position on the nationality of owners, and in fact the regulatory framework encourages an open competitive market regardless of ownership. Some argue that the sale of Míla to foreign entities may jeopardise security interests and be a risk to national security. This is primarily a political issue. Legislation to counteract this may be considered, e.g. to ensure Icelandic jurisdiction over all aspects of electronic communications with provisions to ensure that control equipment

for active electronic communications equipment is located within Icelandic jurisdiction. In any case, the PTA believes that it is important for Míla's owners to be transparent regarding the company's ownership, activities, and procedures to prevent an air of secrecy from causing unnecessary suspicions.

Development of universal service, appointment of NL, and related developments

The old fixed-line telephone network is showing its age and work is underway to discontinue it. In some cases, the change may result in a household in a sparsely populated area losing its landline connection. According to the provisions of the regulatory framework for universal service in telecommunications, voice telephony service must be available in the homes of all citizens. In light of this, Neyðarlínan was appointed to perform the universal service obligation of providing telephony and internet services in such instances. This is generally done by establishing mobile phone service in the area. Neyðarlínan will provide facilities for mobile network equipment, while the mobile network companies will install the equipment and operate the service. An agreement to this effect was signed mid-year, and the Administration believes that such an agreement can, mutatis mutandis, become the basis for further shared use of mobile network equipment in sparsely populated areas where there is market failure.

5G launch - consultation on frequencies

During the year, 5G mobile network services were launched in Iceland. The Administration allocated mobile network frequencies for 5G to three parties. The provision of spectrum licences provides for the development of 5G services in a total of nine communities outside the capital area by the end of 2021. The development of 5G and mobile networks will be one of the main undertakings for market participants and government authorities in this decade. It has been argued that the 5G mobile networks will be the backbone of various services born out of the fourth industrial revolution and that powerful telecommunications, both on fixed and mobile networks, will be the basis for upcoming developments.

The arrangements of all countrywide radio systems will have to be reviewed before the end of the decade. This is partly due to the fact that some of these systems are, or are about to become, obsolete and agreements on them will expire during the decade. These systems are RÚV's longwave, television distribution via UHF transmission, radio distribution via FM transmitters, Neyðarlínan's TETRA mobile network for emergency and rescue teams, and perhaps more. Additionally, it is clear that the operation of four generations of countrywide mobile networks, i.e. GSM, 3G, 4G, and 5G, is costly and older generations will become obsolete and be retired during the decade. This may be an opportunity to streamline, economise, and potentially take a big technological step forward. This is a delicate transformation, however, as many points of view will have to be considered, e.g. access to usable and reliable equipment to receive and use the service, security concerns regarding both operations and network security, costs, ownership arrangements, and responsibility for operations. The Administration recommends a society-wide discussion of these matters as soon as possible.

On a related note, a large proportion of spectrum licences for mobile networks will expire in 2022-2023. The Administrations began preparing for the renewal of the spectrum licences during the year. The renewal was subject to open consultation where feedback on a number of issues related to the renewal was requested from stakeholders. Among the many issues under discussion were fee collection, the duration of spectrum licences for a term of 20 years, coverage requirements for continuous service on the road network for voice and data services, distribution of 5G mobile networks in towns without fibre-optic connections, general distribution to households and companies, distribution on land and in territorial waters, the general quality of services in general, the quality of indoor coverage of mobile networks, and many more. A final decision on the allocation of spectrum licences will be taken with regard to the adoption of new total legislation on telecommunications, which is currently being discussed in Parliament.

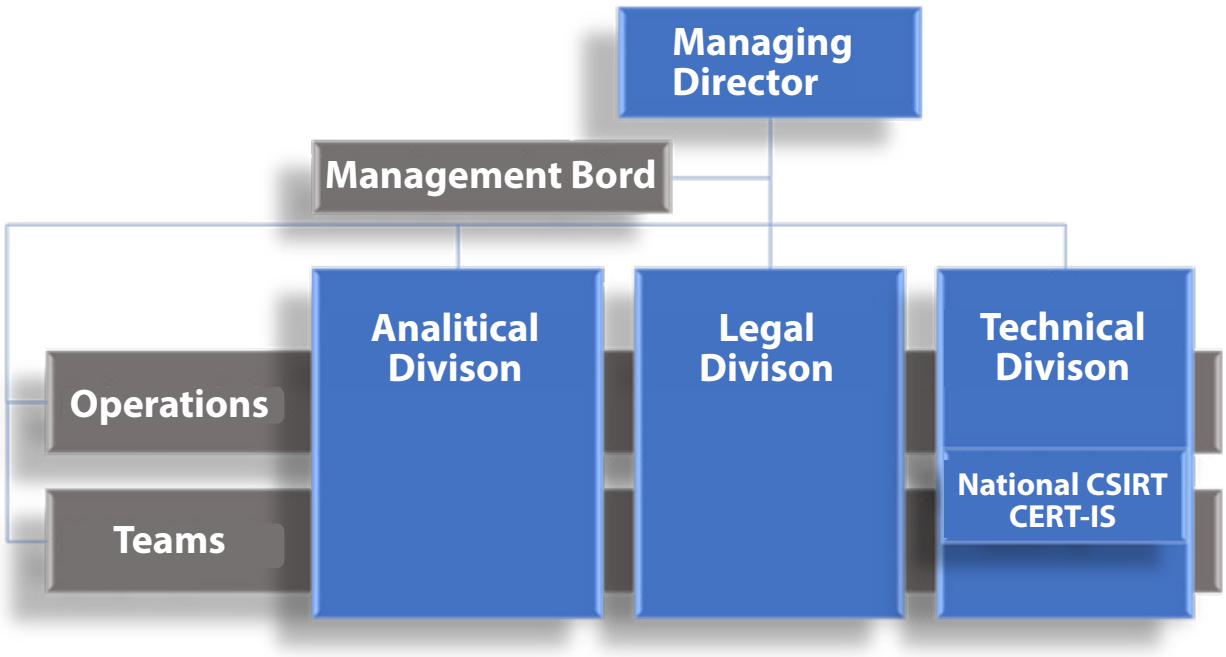
COVID-19 and telecommunications

The COVID-19 pandemic has hardly escaped anyone's notice. At the onset of the pandemic, workplaces and schools were abandoned as people worked and studied via the internet. Teleconferencing and remote learning became the dominant communication forms. This transformation took place in just a few days without any significant disruptions in telecommunications services. Telecommunication access in Iceland is among the best in the world, as is the quality of the connection, e.g. its speed. The government launched the "Iceland Optical Connect-

ion" initiative with the aim of installing a fibre-optic connection in all rural households. The project was well underway before the onset of the pandemic so that when Icelandic children and adolescents had to stay at home due to COVID-19, telecommunication connections were available everywhere and school activities could continue without much interruption all over the country. The investment in Iceland Optical Connection could thus be said to have led to a direct increase in the quality of life of people all across the country by minimising the disruption to remote teaching.

About the Post and Telecommunication Administration

The managing director of the Post and Telecom Administration is Hrafnkell V. Gíslason. The management board is comprised of the managing director and the heads of divisions. The Administration employs 30 full-time staff.



Policy and goals of the PTA

GUIDING PRINCIPLES

- The PTA promotes active competition in all markets serviced by the Administration, and thereby opens those markets for technological innovations and makes them more transparent and more inviting to investors.
- There is an emphasis on ensuring a wide selection of products for consumers, good access to and security of the service so that systems function at all times and the general public can rely on them.
- In Iceland, matters concerning security and the environment are closely linked to practicality and efficiency when it comes to the postal service and telecommunications,

and in this regard we are fully on par with our neighbouring nations.

- The PTA stresses the importance of including specialists among its ranks who can share their professional expertise and knowledge, and that they should enjoy unfettered trust among interested parties, whether they are working in postal service and telecommunications markets or holders of government office.

VALUES

The values of the PTA form the frame for the Administration's activities, and staff members can refer to them for support when it comes to prioritisation and focus in communications both inside and outside the Administration. These values are grounded in the Administration's role and vision, where they serve as incentives that support the vision for the future.

- Confidence - The PTA provides monitoring, where trust is a key factor in all interactions with interested parties on the market. The Administration must inspire confidence and trust in order to adequately provide its function as an independent party on the market. This can be manifested as reliability, the ability to carry out plans, and integrity when it comes to handling sensitive information.
- Professionalism - Professional service in all areas is of vital importance so that interested parties can rely on professional work being done in all areas of its activities, whether this is analysis work, assessment of matters of uncertainty, or in interactions with foreign parties on behalf of Iceland. Professionalism manifests in professional work methods holding up to outside review, commitment and authority, a good attitude and positivity in interactions with all parties.
- Openness - As the PTA must examine issues in light of the various points of view held by individual interested parties, it is important that the Administration's staff have a sufficiently open mind to be able to empathise with the parties involved in relevant issues. The Administration must also show initiative when gathering information and when using that information in the course of its work. This openness can be seen in the involvement of different fields of expertise when working out solutions, taking initiative in the gathering of information, an absence of prejudice, and an open mind.

Policies which the PTA has established with regard to its activities:

- PTA policy
- Human resources policy
- Safety policy
- Policy regarding means of communication
- Equal pay policy
- Policy on the handling of personal data

Organisation and operation of divisions

The Analytical Division is responsible for market analyses, as well as imposing and enforcing financial obligations on telecoms companies that have been designated as having significant market power in market analyses, including cost analysis and accounting separation. This division collects information on pricing and statistics and is responsible for processing and publishing this information. The Analytical Division also conducts various financial analyses of the postal and telecoms service market. In 2019, the head of this division was Óskar Þórðarson.Specialists Guðmann Bragi Birgisson, Hulda Ástþórsdóttir, and Snorri Þór Daðason also worked in this division.

The Legal Division is responsible for processing administrative cases, settling disputes, imposing and enforcing non-financial obligations, universal service, and consumer issues. The division also deals with formal international communications. In 2019, the head of this division was Björn Geirsson, who also assumed the duties of deputy head when needed. Specialist Arnar Stefánsson and lawyers Friðrik Pétursson, Maríjon Ósk Nóadóttir, Sigurjón Ingvason, Unnur Kristín Sveinbjarnardóttir, and Óskar Hafliði Ragnarsson, the leader of the professional market analysis team, also worked in this division.

The Technical Division is responsible for organising and managing spectrum allocation issues and monitoring how the spectrum is used. This division monitors the electronic communications device market, is responsible for collecting and recording data on telecoms infrastructure, as well as processing land-related data and inspecting radio equipment on

board ships. The Technical Division also advises other divisions on technical issues that may affect the Administration's surveillance role. In 2019, the head of the division was Þorleifur Jónasson. Also working in the division were Bjarni Sigurðsson, a specialist in numbering, frequencies and infrastructure, as well as the measurement of telecoms network coverage, Hörður R. Harðarson, a frequencies expert, Jósef Kristjánsson and Óskar Sæmundsson, ship inspectors and roadside communications network coverage specialists, Lilja Bjargey Pétursdóttir, a cartography and land surveys specialist, and Hjalti Pálmason, a specialist in the function and security of communications networks, frequencies, and quality measurements. One new member joined the staff this year: Sigurður Ísleifsson, a specialist in the field of telecommunications monitoring. There were also changes to the staff on the cyber security response team, CERT-IS, which is part of the Technical Division. The response team still consists of three experts in addition to the director of the Technical Division. This year, the team comprised Kristján Valur Jónsson and Soffía Jónsdóttir, in addition to Ágúst Þór Tómasson, who temporarily replaced Stefán Fróðason after the latter terminated his employment. Furthermore, Jón Smári Einarsson was hired as a project manager to direct the introduction of the NIS Act, and he answers directly to the director general.

The Administrative Division is responsible for operational and financial issues, information systems, human resources, quality and documentation issues and public relations, and provides support for all of the Administration's internal work. Among the special projects undertaken by the division in 2020 is work on certification for ISO 27001, the work on the introduction of the privacy and equal pay policies, and the completion of the arrangements for the Administration's archive. The head of the division is Hrefna Ingólfsdóttir. The division's other employees are Birna G. Magnadóttir, protocol officer, Hanna Guðríður Daníelsdóttir, secretary, and Sigrún Davíðs, archive manager.

The PTA Staff Association is a strong organisation of staff members that primarily maintains good morale and cultivates a good spirit among employees. The association works efficiently with the Administration and arranges events of various kinds at regular intervals each year, with different emphases depending on the season. The Staff Association also arranges educational trips abroad on average every three years. The Staff Association's activities in 2020, the year of COVID-19, were more often than not conducted online, with all events planned in the spring being either amended or postponed.

- 21 August 2020 – wine and food pairing at Jörgensen Kitchen and Bar
- 11 September - autumn trip around South Iceland
- The week of 12-16 October 2020 - Oktoberfest, online games and quizzes
- Bingo via Teams – home delivery of beer and snacks to employees
- December 2020 – various lunchtime events on Fridays via Teams
- Remote Christmas buffet

PTA activities in 2020

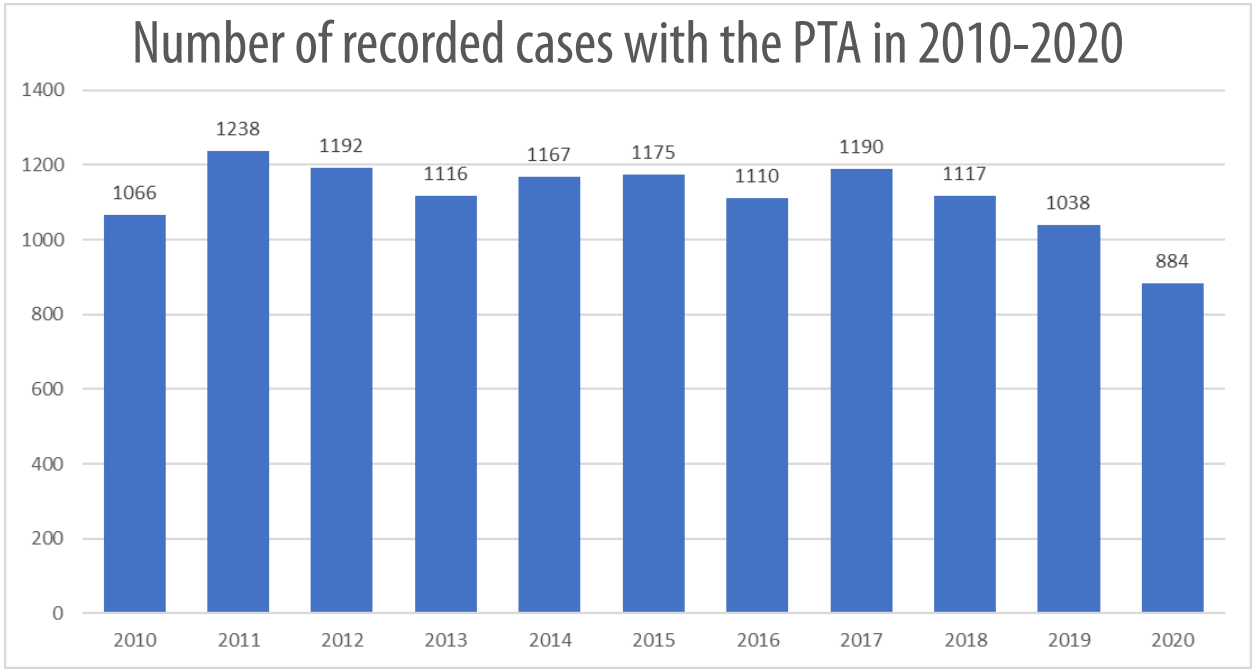
There continued to be an emphasis on the Administration's internal activities and organisation. The ISO/IEC 27001 certification was completed. This project involved the review and mapping of the Administration's major safety and information system management processes, policy-making, and ensuring the continuous review thereof.

Work on equal pay certification for the PTA was also carried out.

The Post and Telecom Administration passed 18 formal administrative determinations in 2020. The Rulings Committee for Electronic Communications and Postal Affairs ruled on six cases where PTA decisions had been appealed to the committee. An overview of decisions and verdicts can be found in the section on administrative determinations of the PTA in 2020.

Case handling time and case workload

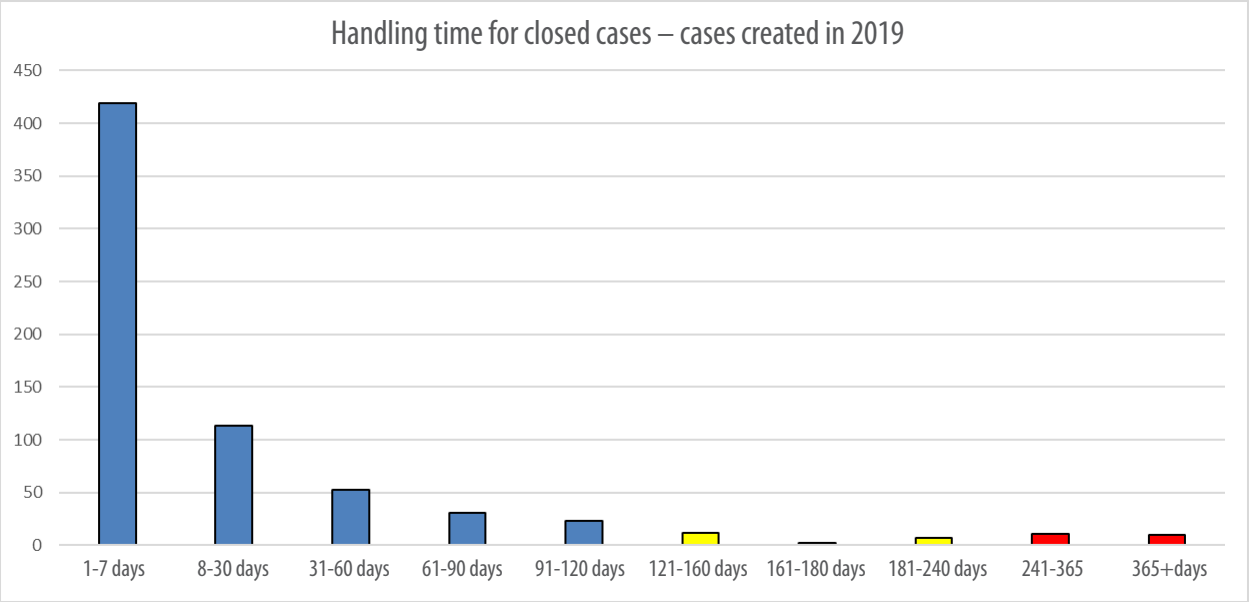
In 2020, a total of 1,038 cases were added to the PTA's case list, which is slightly less than in recent years, as can be seen on the bar graph below. It can be assumed that the COVID-19 epidemic resulted in fewer cases being referred to the Administration than usual. Cases added to the list vary widely in nature, and included consumer complaints, disruption complaints, complaints regarding the basic running of the Administration itself, as well as cases concerning employees' day-to-day duties, such as market and cost analyses, frequency allocations, the issuing of permits, and inspections of radio equipment in marine vessels, to give but a few examples.



Pursuant to Article 12 of Post and Telecom Administration Act No. 69/2003, the Administration is required to resolve complaints as soon as possible, and within four months at the latest, unless there are exceptional circumstances. In an ever-changing and fast-paced competitive market, it is important that disputes are resolved quickly and conclusively, without compromising quality standards.

Subsequently, the time it takes to process complaints lodged with the Administration is monitored closely. Unresolved cases added to the list more than four months ago are designated yellow and cases older than eight months are designated red.

Of the 884 cases created in 2020, 681 fall into these two categories. That is a significantly lower number than the number of cases received under normal conditions. When these numbers are added up in mid-2021, a total of 651 cases were closed with processing times as indicated on the following bar graph.



There are therefore 30 complaints that remained unresolved, most of which were lodged towards the end of 2020. The graph indicates that a large majority of complaints, i.e. 95%, were resolved within the mandatory 120 day time limit.

Various key figures 2020

Frequencies allocated

Radio and television stations 25
Backbone links (number of links) 50
Mobile station systems on VHF and UHF 50 50
MF and HF 155
Short-term radio broadcasting 70
Other temporary licences for Icelandic parties 20
Temporary licences for foreign parties 40

Codes allocated

Number of allocated codes 2,842,440

Disruption complaints

Disruption complaints 751

Issues of radio equipment permits

Aircraft 51
Marine vessels. 473
VHF mobile surface stations 201
UHF mobile surface stations 0
Medium-frequency mobile surface stations - MF. 5
VHF Handheld stations - 485
UHF handheld stations 62
VHF land-based master stations 7
UHF land-based master stations 1
Emergency locator transmitter (PLB) 5
Paging devices 1

Issues of user licences

Radiocommunications licences, marine vessels (GOC) 78
Radiocommunications licences, marine vessels (ROC) 15
Amateurs, Icelandic 8
Amateurs, international. 0
Amateurs, miscellaneous. 30

Inspections of boats and ships – by region

Reykjavík 34
North West. 24
North East 32
South 47
South West 24
Ships registered abroad. 16
Ships inspected abroad/not by the PTA. 1

Inspections of radio equipment on ships and open motorboats

Boats shorter than 24 m inspected by inspection agencies and the Icelandic Transport Authority. . . . 1,234
Boats longer than 24 m and ships 177
Pleasure craft inspected by owners 70

Registered land stations

Fixed stations

VHF stations 341
UHF stations 54
MF-SSB stations 23
Paging devices 16

Vehicle-mounted mobile stations

MF-SSB stations 459
VHF stations 6,880
UHF stations 124

Handheld stations and beacons

VHF stations 7,403
UHF stations 1,857
Markers (beacons) 44
PLB emergency buoys (406 MHz) 101
Miscellaneous equipment 166

Ship stations

MF-SSB stations 11
MF/HF-SSB stations (Combined MF/HF) 177
VHF stations 3,043
Emergency radios 613
Transponders (X-band) 158
AIS transponders (VHF) 86
Navtex 200
Emergency buoys, free-floating (406 MHz) 340
Emergency buoys in lifeboats and inside (406 MH) 2,442
Inmarsat B 0
Inmarsat C 213
Inmarsat M. 5
Automatic identification systems (AIS) 1,831

Allocations of registration numbers

Numbers for marine vessels 300

Overview of publications

- Rate adjustments for letter post under a universal service obligation – PTA(20)-17 – December 2020
- PTA Statistical Report - First Part 2020 - PTA(20)-16 – December 2020
- Overview of Íslandspóstur›s separation of accountancy for 2019 – PTA(20)-15 – November 2020
- PTA Annual Report 2019 - PTA(20)-14 – November 2020
- Consumer survey on the telecommunications market – PTA(20)-13 – October 2020
- Íslandspóstur ohf.'s universal service tariff, "domestic parcels" – PTA(20)-12 – October 2020
- Consultation on the appointment of a universal service provider of telephone and internet services in special cases – PTA(20)-11 – September 2020
- Opinion for Síminn on the second paragraph of Article 46 of the Electronic Communications Act – PTA(20)-10 – August 2020
- Consultation with stakeholders on the appointment of a universal service provider of postal services – PTA(20)-09 – June 2020
- Consultation on market analysis of wholesale markets – PTA(20)-08 – April 2020
- Statistical report on the Icelandic telecommunications market 2019 – PTA(20)-07 – May 2020
- Conclusion of the consultation on cooperation and sharing of telecommunications infrastructure with a special emphasis on 5G development – PTA(20)-06 – May 2020
- PTA policy on the security and functionality of telecommunications infrastructure – PTA(20)-05 – March 2020
- Conclusion of the consultation on the allocation of 5G spectrum licences – PFS(20)-04 – February 2020
- Ideas for a centralised telecoms infrastructure company – PTA(20)-03 – February 2020
- Status document - PTA monitoring of Íslandspóstur›s universal service – PTA(20)-02 - February 2020
- PTA report with suggestions regarding storm damage – 2019 PTA(20)-01 – February 2020

PTA statistical reports

Twice a year, the PTA gathers data from telecoms companies registered in Iceland on various metrics relating to telecoms operations and services. The Administration processes this data into statistical reports that summarise the main metrics and companies operating on the Icelandic telecoms market. The reports are published twice a year: in the second quarter for the whole preceding year and a mid-year status update in the fourth quarter. The aim is to improve information provision and increase transparency on this market. The PTA's reports are equivalent to those published by sister institutions in neighbouring countries. The reports can be found on the PTA's website.

The number of landline subscribers is continuing to decrease from one year to the next, by close to 8%, and minutes are decreasing by just over 4%. The number of landline to mobile minutes is increasing, however, which can probably be attributed to teleworking due to the pandemic. Síminn and Vodafone are the biggest companies on the land-

line market, with a combined share of around 91% at the end of 2020.

The total number of mobile subscriptions is the same as last year, but there is an increase in subscription contracts, while prepaid subscriptions have decreased. The number of call minutes from mobile phones amounted to approximately 1,124 million minutes during the period, compared to 932 million minutes in 2019, which is an increase of 21%, considerably more than the increase in previous years. Teleworking due to the coronavirus is a likely explanation for this increase, see also the increase in call minutes from landlines to mobile phones. There was an increase in messages (SMS and MMS), mostly MMS where there is an increase of over 16%. The mobile network data volume is continuing to increase between years, or by 49% as in recent years in connection with the introduction of 4G. Relatively more mobile network data is used by phones than devices that are solely intended for data usage, e.g. tablets or 4G network equipment.

There has been an overall increase in the number of internet connections and a major increase in fibre-optic connections with a corresponding decrease in xDSL connections. At year-end 2020, 69% of all internet connections were fibre-optic.

The total data volume on fixed networks increased by close to 27% from the previous year, with about 87% of the volume from downloads and 13% from uploads.

There were 88,109 subscribers with television via IPTV at the end of 2020, compared to 91,815 at the end of 2019, a decrease of 4% between years, making this the third consecutive year where the number of IPTV users has decreased.

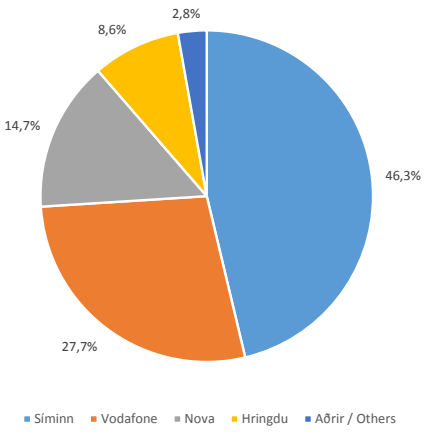
Turnover in the telecommunications market remained the same in 2020. Revenues from landline and mobile phones decreased, while revenues from fixed networks, data transmission, and internet services, television services, and other media have increased.

Comparative statistics on the use of electronic communications in eight countries

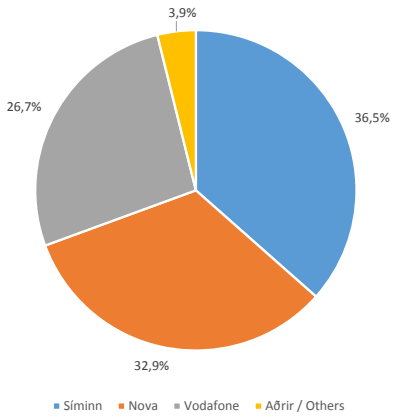
A statistical report is published annually in cooperation with the PTA and its sister institutions in the Nordic and the Baltic countries. The report gathers comparative data on the use of the main electronic communications services and on developments over recent years in the eight countries. On the whole, the use of electronic communications is very similar in these countries and their citizens use comparable technologies in a similar way. Despite this, there are nonetheless variations in the usage and development of specific services.

The Nordic comparative report can be accessed on the PTA website under Publications.

Internet subscriptions
Market share by company



Mobile subscriptions
Market share by company



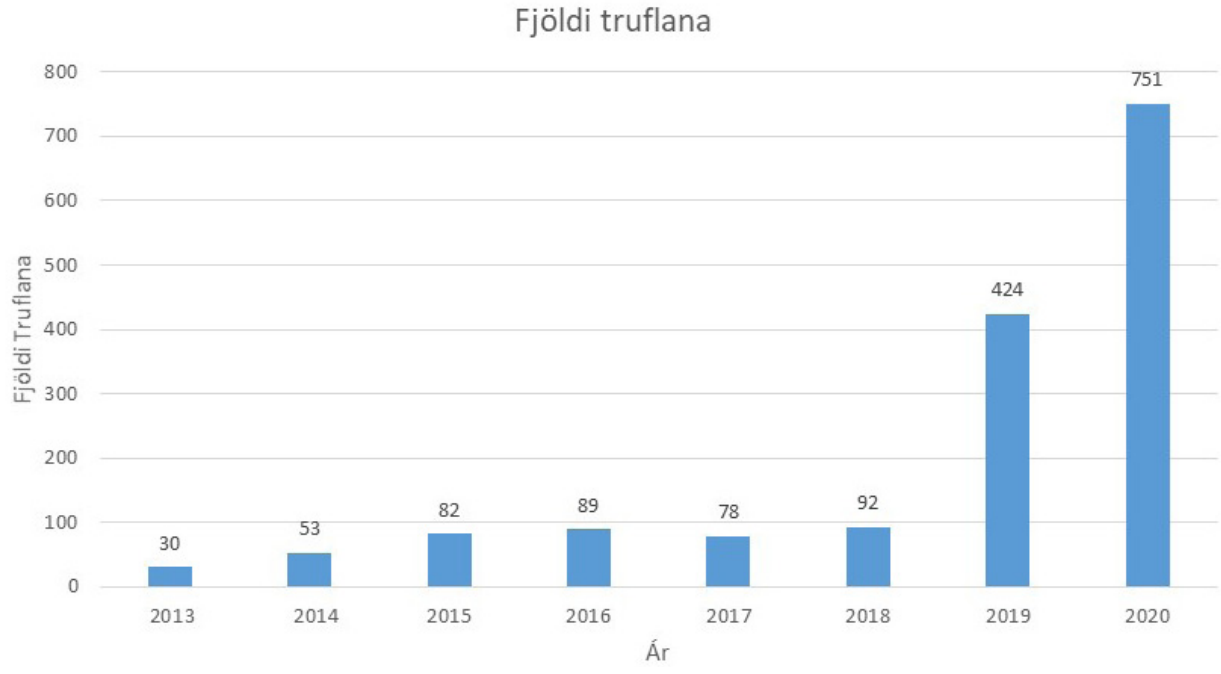
The electronics communications market

The electronics communications market is constantly changing in step with technological developments and changes in the legal environment, both in Iceland and on an international level.

Monitoring the airwaves – PTA interference monitoring

The frequency spectrum is a limited resource determined by nature, and it must be used in an efficient manner in order to have a telecommunications network that can function without interference. Technologically, communications devices are rapidly advancing and it is therefore necessary to manage the frequency spectrum effectively. This is a key point in ensuring the interoperation of various radio systems without them interfering with each other. Spectrum monitoring serves as the eyes and ears when it comes to the organisation and allocation of frequencies. Permission to use a frequency under a frequency authorisation is not a guarantee that the frequency will be used as described in the PTA's authorisation. Frequencies are used twenty-four hours a day, seven days a week, all year round. Most electronic communications companies that provide services on an allocated frequency range maintain 24-hour monitoring of the services. Reports of disruptions continued to increase in number in 2020, as was the case in the years prior.

Work on disconnecting MMDS antennae in the Reykjavík area continued in 2020. At the beginning of 2020, the PTA detected and located approximately xxxx disturbances in the area. A total of about 700



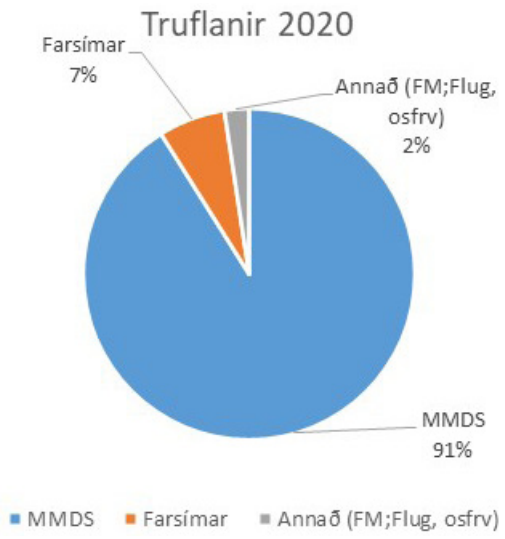
Yfirlit yfir radíótruflanir árið 2020

MMDS antennae were disconnected in 2020. Fewer homes were visited due to COVID-19 restrictions, but a number of households and businesses were asked to disconnect MMDS antennae. Owners received a letter with instructions on how to disconnect the antennae. These numbers do not include owners who made the disconnection themselves, but it is estimated that approximately xxx disturbances were resolved with the help of owners.

Overview of radio disruptions in 2020

Disruptions caused by microwave antennae (MMDS) account for about 91% of the disruptions dealt with, as the cause of the disruptions can be traced to obsolete but still functioning microwave antennae. Other disruptions to mobile phones account for 7% whereas disruptions to other systems is about 2%.

Microwave antenna (MMDS) disruptions are caused by malfunctions in obsolete microwave antennae installed by many households to receive broadcasts from the subscription television service provided by Fjölvarpið at the time. The only way to eliminate the disruptions is to unplug the antennae or disconnect them from the power supply.



Access to telecommunication services

The authorities emphasise the importance of achieving a level of access to telecommunication services that is among the best available in the world. This is reflected in the goals of the authorities that are stated in both the budget for 2020–2024 and in the proposed parliamentary resolution for an Electronic Communications Plan for 2019–2023.

Access to broadband is still increasing, and this is especially due to the effects of the Telecommunications Fund project for providing fibre-optic connection to the rural areas of the country. The goal is to complete this project in 2021, by achieving broadband access for 99.9% of households in the country. The remainder would then be rural areas with a high population density. Today, nearly all of these places have high-speed connections based on xDSL technology. The government considers that evidence of market failure has not been demonstrated with regard to the rollout of fibre broadband in rural population centres. Pressure from local authorities and residents is likely to result in market-driven efforts to improve high-speed connections in these areas over the following years, either through the installation of fibre broadband cables, the development of powerful 5G services, or a combination of these solutions.

Nearly all homes and workplaces in Iceland have access to mobile network services with voice communications and high-speed internet. High-speed internet can certainly vary in quality, and it is likely that the quality will be different in urban and rural areas. This difference in quality will be assessed through planned quality measurements that are intended to take place once net neutrality laws are on the statute book.

The situation is somewhat different when it comes to access to mobile network services along Iceland's highways. Accessibility goals have not been fully realised there. It is clear that market participants and the authorities face the challenge of improving mobile network access in Iceland along the country's highways. This is also of particular importance in connection with the development of 5G mobile network services in the long term.

Survey of the functionality and quality of reserve power for mobile network transmitters in Öræfasveit

According to Article 8 of Act No. 75/2021 on the Electronic Communications Office of Iceland, the role of the Office is to protect the security and integrity of telecommunications networks. The security requirements for public telecommunications networks are provided for in more detail in Article 47 of the Electronic Communications Act. The main requirement is for electronic communications companies to establish documented security arrangements, implement them, and maintain them through regular internal controls. According to the aforementioned provision, the PTA may also carry out safety inspections or tests of individual aspects of the security arrangements of electronic communications companies.

The quality and efficiency of reserve power plays a significant role in ensuring the functionality of mobile network services in Iceland, where various natural hazards can be expected. A recent example is the storm that swept across the country in December 2019, where reserve power and other power sources for telecommunication infrastructures were put to the test. However, it can be difficult to predict where unexpected natural disasters, such as storms, may occur. The Administration has therefore focused on defined natural hazard areas when prioritising its monitoring. Reliable telecommunications services can be a key factor in contacting inhabitants or travellers in such areas in the event of a natural hazard. The PTA has previously sought to examine the quality of the reserve power of telecommunication transmitters in the Katla natural hazard area, but now the focus has been on the natural hazard area around Öræfajökull.

The PTA tested the reserve power of Nova ehf., Síminn hf., and Sýn hf. in the summer of 2019 in the area in question. Testing also extended to Neyðarlínan, which took part in the evaluation on its own initiative. In 2020, the measurements were processed and the results applied to the quality criteria on which the evaluation was based. Decisions on the results of this testing were published at the end of the year.

The testing methodology was twofold. First, it was considered whether the reserve power was sufficient to maintain services in the event of a power outage for a period amounting to twice the evacuation period for the area in question. In the end, reserve power for one transmission site did not meet this criterion, and the operator in question was required to make improvements. Second, it was considered whether reserve power was sufficient to maintain services according to the company's plans. The length of time can vary greatly between these two. In certain cases, a special backup power generator may also be available for the transmission site. The results showed that in general, the quality of reserve power is such that it meets the standards set by the companies, although declining quality was occasionally observed as tests progressed. In such cases, the operators concerned were required to monitor the quality of reserve power closely.

Decommissioning of the old PSTN system and mitigating measures

On 1 October 2020, Síminn initiated the first phase in decommissioning the old public switched telephone network. According to Síminn hf.'s current plans, the system will be fully decommissioned by the end of 2023.

In recent years, telecommunications systems based on analogue technology have been giving way to digital networks, which are considered to be more efficient and provide consumers with a better service experience. Over the years, it has proved costly and technically complicated to maintain the PSTN system, as various equipment that supports the system is no longer manufactured. Such networks also require much more space (housing facilities) than digital telecommunications networks, and this also entails increased costs, inefficiency, and environmental footprints.

The technological transformation of switching from analogue to digital telecommunications networks is therefore unavoidable, and this development has been taking place all over the world. Many European states have either completed or nearly completed this transformation, including Estonia, the Netherlands, Norway, and Switzerland. All these countries have generally good distribution of high-speed networks, both fixed and mobile network connections. Most network operators in other European countries have made plans to decommission these older systems in the next few years.

Iceland is one of the world's foremost countries when it comes to the spread of high-speed networks. As many as 96.9% of Icelanders have access to a high-speed fixed network connection (optical fibre or VDSL) and 99.97% of Icelanders have access to 3G mobile network services. Iceland is therefore well prepared for the technological transformation ahead.

Despite this, it is clear, based on Síminn hf.'s prediction model, that there will be some cases where households or workplaces will lose access to all telecommunications when the PSTN system is decommissioned. In response to the situation, the PTA decided to appoint Neyðarlínan ohf. as a universal service provider to provide telecommunications connections for telephone services and usable internet services in these special cases, see Decision No. 9/2020. Thus, no one should be without a connection once the old telephony system has been decommissioned.

It is also clear that some users will have to make changes to their telecommunications services upon the decommissioning of the telephony system, e.g. order a digital telephone service (VoIP) over the copper local loop, which will remain in use despite the decommissioning of the telephony system, or activate an installed fibre-optic connection.

Allocation of spectrum licences for 5G mobile network services

Last spring, the PTA allocated a frequency to provide 5G services in the 3.6 GHz frequency band. The frequency was allocated to existing mobile network companies whose operations include 4G mobile networks, i.e. Síminn hf., Sýn hf. (Vodafone) and Nova ehf., following the PTA's open consultation in late 2019.

Frequencies at 3.6 GHz, and certain other frequencies that are higher in the frequency spectrum and will be allocated later, will be the main foundation for the next generation of high-speed mobile network services and is in fact the driving force for the fourth industrial revolution, where various devices and objects will be connected to the internet. The 5G technology will be introduced in several steps, with the first step intended to support reasonable technological updates and the capacity of existing high-speed mobile networks in the operation of the companies. In the future, various technological innovations related to the Internet of things and secure high-speed mobile network services will be introduced and are likely to mark a major change in how technological solutions are used in society. The rapid developments of cloud services and data centres must be considered in this regard, and it is believed that mobile network devices will be able to use various controls and services that are partly based on AI.

Spectrum licences were allocated for a short term, i.e. until the end of 2021. There were various reasons for this, as detailed in the aforementioned consultation document, but the main reasons were the uncertainty about the structure of the system and the foreseeable changes in telecommunications legislation that will affect the terms of spectrum licences in the long run.

In light of this, no particular obligations to develop mobile networks and distribution of 5G services were specified, as is the custom. On the other hand, the frequencies were expected to be used efficiently, as defined by the PTA's criteria. These included both general criteria for specific distribution of 5G services to a certain proportion of the country's population and specific criteria for the development of a 5G network for certain urban centres in the countryside, as decided by the electronic communications companies.

The renewal of spectrum licences for electronic communications companies depends on whether they have utilised the spectrum frequencies efficiently in accordance with the relevant PTA criteria. If plans for the efficient utilisation of spectrum frequencies are realised, systematic 5G distribution of urban areas outside the capital area may be considered to have begun. This means that up to nine rural communities can expect to have access to 5G services, i.e. an average data transmission speed of 200 Mb/s. With the renewal of the 5G spectrum licences, it can be expected that the data transmission speed will increase and more urban areas will be added to those that will have access to 5G services in the future.

PTA market analyses of the telecommunications market, 2020

Market analyses of the electronic communications market form a significant part of the PTA's operations. They constitute the most important policy instrument for the PTA to safeguard competition and support fair pricing, innovation, and improved access to services across the country. They are used to strengthen competition by analysing the position of players on the market and by imposing appropriate obligations where competition is not considered adequate.Market analyses are the basis for decisions on whether to impose, maintain, change, or lift specific regulatory obligations on electronic communications companies that have been designated as having significant market power.

The production of a market analysis report can be divided into three phases:

1. Defining the relevant service markets and geographical markets.
2. Analysing all markets, determining whether there is active competition on these markets, and making a decision as to whether there are one or more companies with significant market power.
3. Making a decision as to whether restrictions should be imposed, amended, or withdrawn with regard to companies with significant market power.

The PTA produces analyses of the markets specified in the recommendation from the EFTA Surveillance Authority (ESA) in accordance with the Icelandic Electronic Communications Act and Iceland's obligations under the EEA Agreement. Furthermore, the Icelandic Electronic Communications Act requires the PTA to define these markets in accordance with the circumstances specific to Iceland. The PTA's market definitions may therefore be expected to vary from those in the recommendation. In addition, the PTA is permitted to review additional telecoms markets over and above those specified in the recommendation. The ESA recommendation currently in force was issued on 11 May 2016 and lists fewer markets than in previous ESA recommendations on the same subject, published in 2004 and 2008, respectively. Few markets in the recommendation from 2008 were considered to still satisfy the requirements for imposing advance restrictions. The markets that must be reviewed under the current ESA recommendation from 2016 are the following wholesale markets:

Market 1: Voice call termination on individual public telephone networks provided at a fixed location

Market 2: Voice call termination on individual mobile networks

Market 3:

a) Local access provided at a fixed location
b) Central access provided at a fixed location for mass-market products

Market 4: High-quality access provided at a fixed location

The PTA's analyses of the following wholesale markets based on the ESA recommendation from 2008 remain in effect:

Market 4: Network infrastructure access (including shared or fully unbundled access) at a fixed location (PTA Decision No. 21/2014)

Market 5: Broadband access (PTA Decision No. 21/2014)

Market 6: Terminating segments of leased lines (PTA Decision No. 8/2014)

Market 7: Voice call termination on individual mobile networks (PTA Decision No. 20/2015)

In addition to this, the analysis of the following wholesale market based on the ESA recommendation from 2004 remains in effect:

Trunk line segments of leased lines, previously market 14 (PTA Decision No. 21/2015)

The main PTA tasks in the field of market analysis in 2020

During the year, work was done on analysing the following wholesale markets in accordance with the Administration's annual plan and the analyses on these markets are scheduled to be completed in 2021.

Market 3: a) Wholesale local access provided at a fixed location (previously Market 4/2008)

Market 3b) Central access provided at a fixed location for mass-market products (previously Market 5/2008)

The PTA also began analysing the following markets in 2020:

Market 4: High-quality access provided at a fixed location (previously Market 6/2008)

Market 14/2004: Trunk line segments of leased lines

Furthermore, continued emphasis will be placed on enforcing the obligations that have been imposed as a result of market analyses, particularly on cost analyses of wholesale prices and reviews of reference offers.

Main tasks related to monitoring obligations in 2020

Cost analyses and price rulings

The principal projects concerning price rulings and cost analyses in 2020 were as follows:

- 10/2020 – Wholesale rate for call termination in individual mobile networks – 22 October 2020
- 11/2020 – Wholesale rate for call termination in public telephone networks provided at a fixed location – 22 October 2020

The postal market

Postal Services Act No. 98/2019, which entered into force on 1 January 2002, marked the final step in abolishing the Icelandic State monopoly on postal services, in accordance with Directive 2008/6/EC of the European Parliament and of the Council amending Directive 97/67/EC, opening up the market. The new legislation caused a fundamental change in some aspects of market surveillance, particularly how tariff control is carried out and how universal service is ensured throughout the country. The Administration was also entrusted with new tasks, such as managing the postal code register, which had previously been the responsibility of Íslandspóstur ohf. (hereinafter referred to as "ÍSP")

PTA surveillance of universal service tariffs

Acting as a universal service provider, ÍSP announced new tariffs for domestic letters and parcels, in accordance with the first paragraph of Article 18 of the Postal Services Act. The Administration subsequently published -Status Document- PTA (20) -02, which included a review of the rules that apply to the Administration's involvement with and supervision of universal service tariffs as well as an amendment to the Postal Services Act which stipulated that tariffs for universal service should be the same everywhere in the country.

There was not considered to be a reason to comment on the company's announced tariff for letter post, which was to take effect when the Act entered into force. However, Section 3.1 of the above-mentioned PTA status document included the following on the company's tariffs for parcels:

"ÍSP's tariff for parcels has from the beginning been divided into three regions, as well as a special price category (region 4) for distribution via the Rural Post Delivery. In some instances, the price difference between these areas has amounted to dozens of per cent within the same weight category. With the legal amendment, ÍSP is prohibited by law from dividing the tariff as the company has done up until now. During negotiations for a potential service agreement with the Ministry of Transport, ÍSP stated its belief that it was entitled to a contribution from the Treasury due to this new obligation. Whether this is the case, and what the amount of such a contribution should be, see paragraph 6 of Article 12 of the Postal Services Act, will be taken under consideration in the current appointment process for universal service, see PTA Decision No. 29/2019, as the pricing of parcels under universal service may influence any government grant to the universal service provider. The Administration intends to publish a consultation document on the appointment of a universal service provider at the end of the following March. ÍSP's notes refer to the objective of using the new tariff to maintain current prices, for the time being, taking into account the services that the company provides according to the new Postal Services Act. ÍSP also notes that the actual figures from the operation of the company under the new legislation will not be available until after the conclusion of one fiscal year. The company furthermore points out that the behaviour of consumers in the new legal environment is a variable that cannot be predicted at the

moment. The PTA can agree with the above views of ÍSP, as there has been no experience of the effects that the new legislation will have on the operations of the company, especially as regards the requirement for the same tariff throughout the country. It has furthermore been reported that ÍSP has recently undergone various streamlining measures and changes due to operating losses, e.g. changes in the supply of services, the response to a reduction in the volume of letter post, closing of facilities, reduced staff numbers, etc. The Administration can agree that the basis on which the company has based its pricing up to now is perhaps not ideal for determining the company's pricing of universal service products in the long term, especially as regards the new obligation stipulating the same price for all universal service products."

However, the Administration deemed it necessary for ÍSP to revise its tariff earlier than planned. A new and revised tariff took effect on 1 August 2020.

Subsequently, the Administration published a new status document, PTA(20)-12, which included a review of the current status of the case.

"In its previous status document, the PTA stated that it did not consider it necessary, as matters stood, to call for further justifications and/or explanations of the universal service tariffs dated 1 January 2020 and that the Administration did not intend to use the authorisation to intervene provided for in paragraph 3 of Article 18 of the Postal Services Act. The Administration referred to the fact that there had been no experience of the effects that the new legislation may have on the company's operations, especially as regards the requirement for the same tariff throughout the country. It was furthermore reported that ÍSP had recently undergone various streamlining measures and changes due to operating losses, e.g. changes in supply of services, response to a reduction in the volume of letter post, closing of facilities, reduced staff numbers, etc. The Administration therefore agreed that the basis on which the company had based its pricing up to now was perhaps not ideal for determining the company's pricing of universal service products in the long term. This would be especially true of the new obligation for equal pricing for all universal service products. Parliament expanded the scope of universal service in the second paragraph of Article 17 of the new Postal Services Act so that now all universal service is subject to the obligation to charge the same price throughout the country, including parcels of up to 10 kg, while this obligation had previously only applied to letter post of up to 50 g. Before the entry into force of the new Act, tariffs for parcel shipments were generally different for each area."

The conclusion of the PTA's notice reads as follows:

"On the other hand, it can be assumed that the tariff for domestic parcels will be reviewed again in 2021, when ÍSP submits information in connection with the company's separation of accountancy for 2020, see Article 19 and Article 20 of Postal Services Act No. 98/2019. As noted previously, it is furthermore possible that the tariff for parcels will be reviewed in connection with the calculation of ÍSP's universal service contribution. The company has already received a provisional contribution amounting to ISK 250m for the business year 2020, see PTA decision No. 29/2019."

Tariff for letters 0-2000 g

On 30 November 2020, ÍSP announced price changes for letter post under universal service, 0-2000g, which were to take effect on 1 January 2021. In the PTA's status document dated 18 December 2020 (PTA(20)-17), the Administration came to the conclusion that there were no grounds to comment on this notice from ÍSP, neither on the basis of paragraph 6 of Article 17 nor according to the authorisations detailed in paragraph 3 of Article 18 of the Act.

Changes to business terms within universal service.

In 2020, ÍSP, as a universal service provider, made some changes to business terms, including terms that apply to postal items in universal service. The two main changes were as follows.

In a notification dated 12 May, the company announced changes to the discount terms for bulk post that had been in effect since 2012. ÍSP estimated that the changes would take effect on 1 September 2020.

According to paragraph 2 of Article 18 of Postal Services Act No. 98/2019, changes to prices and bulk postage terms must be announced with a notice of at least 30 days. The universal service provider must, within the same time limit, send the Post and Telecom Administration satisfactory justification for the changes that are made.

According to paragraph 3 of Article 18 of the Act, the PTA may review the calculations of the universal service provider and, as the case may be, provide for changes to the announced price if the calculations of the universal service provider are incorrect or do not justify the announced increase. It is also specifically noted that the Administration may accept and/or reject a request for a tariff change in part or in

full, and that it has a notice of 30 working days to respond to a notification of a tariff change.

ÍSP's announcement included the company›s justification for the changes. The PTA requested feedback and/or comments from potential stakeholders on the changes announced by ÍSP. Comments were received from two companies, Póstmarkaðurinn and Burðargjöld. In its comments, Póstmarkaðurinn requested that the PTA issue a preliminary determination demanding that ÍSP withdraw its announced tariff change, provided that the case is not concluded otherwise in a timely manner. In Decision No. 7/2020, the PTA approved Póstmarkaðurinn's request to postpone the entry into force of the amended terms, which were to take effect on 1 September 2020, although for no longer than to 31 December 2020.

With Decision No. 16/2020, the PTA concluded that there were no grounds to comment on ÍSP's tariff change for bulk postage.

This conclusion was partly based on changes to the calculation rules for special bulk postage tariffs made in Postal Services Act No. 98/2019. An independent cost analysis of how the company benefits from bulk transactions is no longer required. Instead, the general rule in paragraph 3 of Article 17 applies.

The PTA also referred to the company's cost accounting, according to which ÍSP's leeway for discounts had been reduced so that the current total discount for post collectors now exceeds the leeway for discounts according to cost accounting. The company's cost accounting therefore no longer supported, as it did before, the scope of the discounts provided by ÍSP since 2012. The company's required cost accounting therefore provided no grounds for commenting on ÍSP's notification of changes to the company's discount terms for parties making collections and other major senders.

The company's cost accounting thus directly justifies ÍSP's intentions regarding the need to amend the existing discount terms. There is therefore sufficient justification for the intended changes to ÍSP's tariff for bulk postage, see paragraph 2 of Article 18 of the Act, and no substantive grounds for demanding improvements to the company's tariff on the basis of paragraph 7 of Article 17 of the Act.

Towards the end of the year, ÍSP announced amendments to the business terms, with an effective date of 1 January 2021, regarding general international letter post. In addition to general terms relating to the weight, address inscription, and dimension of letters, there is now the requirement that general, untraceable letters may not contain any goods.

It is also noted that as of January 2021, general letter post may not contain dutiable shipments. Dutiable shipments must be sent as a traceable letter or parcel.

This change was made to meet international requirements that all shipments containing goods must be accompanied by electronic information to be used for processing and customs clearance in the receiving country.

The European Union and the UPU have issued a regulation to that effect while the US Congress has, with theSTOP Act of 2018, required US companies to receive advance electronic information on the contents of all international post shipments. US authorities reserve the right to resend or destroy any shipments that do not meet these requirements, at the expense of the country of origin.

The authorisation to send this information is based on Article 24 of Postal Services Act No. 98/2019, which states that postal service operators may send certain information to foreign customs authorities, carriers, or postal service operators overseas in order to facilitate customs clearance of shipments and ensure the safety of post transport by sea, land, and air.

- contact information about the sender,
- contact information about the recipient,
- information about the contents,
- information about value,
- information about the shipment's ID no.

The provision notes include a discussion of the necessity of such a legal authority due the constantly increasing demands for such electronic information in advance to facilitate customs clearance in the destination country.

If the relevant information is not attached, the shipment may be destroyed or sent back.

Appointment of Íslandspóstur as a universal service provider

With PTA Decision No. 13/2020, Íslandspóstur was appointed as a universal service provider of countrywide postal services. The decision was made following consultation with stakeholders.

The appointment is effective from 1 January 2021 to 31 December 2030. However, changes may be made to individual provisions of the appointment if the criteria have changed significantly or if laws and regulations have been amended.

Distribution of the following postal items falls under universal service according to the PTA's decision:

- Single letters up to 2 kg
- Bulk letters up to 50 g
- Parcels up to 10 kg (domestic)
- Parcels up to 20 kg (overseas)
- Registered items
- Insured items
- Items for the blind up to 2 kg

Postal items covered by universal service must be distributed at least two days a week to individuals who have permanent residence, see the Act on Legal Domicile and Residence. In the same way, postal items shall be delivered to legal entities with permanent professional activities in the relevant premises. Postal delivery to parties (individuals or companies) where markings or letterbox locations are not according to the provisions of applicable laws and regulations may be discontinued.

Íslandspóstur shall furthermore conduct its operations according to the obligations that Iceland has undertaken pursuant to international postal agreements. The decision also includes a definition of active and inactive market territories, i.e. areas where postal service operators would not provide services and/or provide services in a different manner than that stipulated in the rules on universal service.

The Administration's decision on the demarcation of the country into active and inactive territories is based on postal codes and the overall division is as follows:

	Address	Place of work	Total	Proportion
Active	116,489	14,409	130,898	85%
Inactive	19,195	3,883	23,078	15%
Total	135,684	18,292	153,976	100%

The decision also describes the main calculation rules for the company's universal service costs (net costs) and to ensure transparency regarding the extent of ÍSP's costs from universal service, the company was obliged to split the costs in four:

- Net cost of distribution via Rural Post Delivery
- Net cost of distribution in communities with fewer than 750 companies/households
- Net cost of having the same tariff throughout the country for universal service products, see paragraph 2 of Article 17 of the Postal Services Act.
- Net cost of items for the blind

ÍSP was to account for the main calculation criteria for each of these items. In addition, the decision provides for monitoring of Íslandspóstur›s tariff, separation of accountancy, monitoring of the company's financial position, etc.

Postal code register

With new Postal Services Act No. 98/2019, responsibility for the postal code register was transferred from ÍSP to the PTA, see Article 15 of the Act, which reads as follows:

"The Post and Telecom Administration determines the geographical boundaries of postal codes and publishes the postal code register and the geographical coverage of postal codes. Changes to the postal code register may not be made except in consultation with Registers Iceland."

The postal code register is defined as follows in item 19 in Article 4 of the Postal Services Act:

"Numbers, or a system of numbers, used primarily for geographical demarcation, to locate recipients, and to facilitate the distribution of postal items."

Accordingly, the Administration published the main information on postal codes, together with an overview of Icelandic postal codes as of year-end 2019.

Parties to cases addressed by the Post and Telecom Administration

In a claim dated 5 March 2020, the Icelandic Federation of Trade demanded a re-examination of the re-evaluation of the tariff from Íslandspóstur ofh. (ÍSP) for parcel shipments under universal service.

In order for an individual or legal entity to be a party to administrative proceedings, they must have a direct, substantial, special, and legally protected interest in the outcome of the case. In order for an interested group or organisation to be involved in administrative proceedings on behalf of its members, a significant number of members must meet the above conditions.

The PTA considered it doubtful whether these conditions were met in this case.

Internet and information security

Cyber and data security are becoming an increasingly important part of offensive and defensive issues for society as a whole, and the PTA plays a key role in this regard. The Administration operates the Computer Emergency Response Team (CERT-IS), monitors physical security of electronic communications networks, and is a party to the Cyber Security Council, which is the platform for cooperation with the official body and has the role of implementing government policy on cyber and data security. The Administration also maintains a website with information for the public on cyber security, www.netöryggi.is, and cooperates with parties who work on cyber security issues.

The 2019 spring session of Parliament passed Act No. 78/2019 on the cyber and data security of critical infrastructure. The Act entered into force on 1 September 2020, and the Post and Telecom Administration plays an important part in this legislation. This includes acting as administrative authority towards digital infrastructures and providers of digital services, as well as overseeing the harmonisation of authorities in other sectors. The activities of the CERT-IS cyber emergency response team will be increased considerably in order to take over services from the parties that will be defined as operators of essential services.

Activities of the CERT-IS cyber emergency response team

The CERT-IS cyber emergency response team operates under the Post and Telecom Administration pursuant to the Icelandic Electronic Communications Act and Regulation No. 475/2013. The team maintains the website www.cert.is and its role is to prevent and mitigate the risk of cyber terrorism and other security incidents within its online jurisdiction and to counteract and minimise damage from such events to the community's critical information infrastructure. The CERT-IS service team will be expanded considerably with the entry into force of Act No. 78/2019, and will subsequently be able to better serve Iceland's most important infrastructures. CERT-IS also has the role of national point-of-contact with regard to cyber security incidents within Iceland's online jurisdiction. In February, CERT-IS became a formal member of the FIRST organisation, the global Forum of Incident Response and Security Teams.

The PTA's policy on the security and functionality of telecommunications infrastructure

The PTA is tasked with ensuring that electronic communications companies implement documented security arrangements to protect telecommunications networks and the information transmitted through them, and the Office is expected to carry out active monitoring in these matters. The PTA therefore considered it appropriate to look to the future and formulate a policy, published last year, on how to approach this project.

The policy sets out the Office's vision for the security and functionality of telecommunications infrastructure in Iceland. This vision is based on general objectives concerning, first, safety levels and safety awareness in the telecommunications market and, second, risk assessment of important aspects of telecommunications infrastructure. More specific actions were also introduced, i.e. an evaluation policy and rules of procedure, to follow up on the PTA's general objectives.

Last year, work continued on a risk assessment for Iceland's telecommunications infrastructure in collaboration with electronic communications companies. This is a large-scale project that will provide the PTA with an overview of the status, synergies, and major risk factors that could affect the most important telecommunications infrastructure and cause serious telecommunication disruptions and interruptions for a large number of users and/or across large areas. The results of the evaluation will also guide the PTA's prioritisation in carrying out surveillance and developing an evaluation policy for important telecommunications infrastructures.

Consumer affairs

One of the PTA's roles is to protect the interests of consumers in the telecommunications market. It is safe to say that consumers in the telecommunications market often face various different and complex options, both as regards the selection and arrangement of telecommunication services.

The Administration commissioned a consumer survey in September/October 2020 on various issues concerning fixed-line services. One of the objectives of the survey was to examine whether fibre-optic and copper connections fulfilled the same requirements for consumers, and the conclusion was that this is indeed the case.

Another interesting result of the survey was the percentage of households that purchase an internet connection and other fixed-line telecommunications services through various package solutions. This includes landline telephone, which approximately every other household still subscribes to, according to the survey.

The results also showed that the vast majority of households, or almost 70%, pay for a subscription to a television and/or video streaming service provided through the household's fixed-line connection. Of the households that subscribe to such services, a very high proportion, over 80%, subscribe to services as part of a package solution. Netflix is the most popular foreign streaming service, followed by Disney+ and Viaplay, which are nevertheless considerably behind Netflix.

Consumers seem to be generally satisfied with the quality of their connections and consider them sufficient for their internet service needs. Video and music streaming services are popular and the widespread use of video calls and remote working during the year should come as no surprise.

The PTA intends to conduct a similar consumer survey on various consumer telecommunication market issues each year, but these surveys are expected to be on a smaller scale. These surveys will examine factors such as consumers' attitudes towards market participants, their price awareness, and whether they are aware of competition in the telecommunications market. In the Administration's opinion, such surveys could indicate what the focus should be in consumer protection, as well as the status of the market.

Legal environment

The PTA issues rules of procedure

PTA proceedings often involve considerable interests of market participants and consumers and of society as a whole. It is therefore important that procedures are careful, objective, and transparent. According to the Act on the Electronic Communications Office of Iceland, the Office may establish rules of procedure for settling disputes.

The PTA has of course followed the basic rules of administrative law, both written and unwritten, in its administrative proceedings. In the vast majority of cases, PTA procedures have passed all reviews by the Ruling Committee or the courts.

However, the PTA believed that it was time to issue rules of procedure, in part to document any unwritten procedures for various procedural aspects that are not covered by the Administrative Procedures Act or implement its provisions more fully. The PTA therefore issued its rules of procedure last summer following open consultation with stakeholders.

The rules are intended to increase transparency in administrative decisions and ensure that administrative proceedings are well prepared and concluded according to good administrative practices.

The rules apply in general to administrative matters referred to the PTA, but not to specific tasks that are subject to special rules of procedure, e.g. frequency allocations and market analyses. These are primarily procedures for resolving disputes between consumers and electronic communications companies or between companies in the telecommunication and postal market.

New Act on the cyber and data security of critical infrastructure

On 1 September of last year, new laws on cyber and data security entered into force: Act No. 78/2019 on the cyber and data security of critical infrastructure. The Act transposes into national law the EU's Directive on the security of network and information systems, often referred to as the "NIS Directive". Parliament passed the Act in June 2019

The NIS Directive is intended to ensure the minimum security of network and information systems of parties who provide services that are particularly important for national infrastructures, i.e. "critical infrastructure". Critical infrastructure is defined as, on the one hand, operators of essential services in banking and financial market infrastructures, logistics, health services, energy, hot water and freshwater supply, and digital infrastructures and, on the other hand, providers of digital services in the fields of online marketplaces, internet search engines, and cloud services.

The objective of the NIS Directive is to boost the security and resilience of network and information systems of critical infrastructure, i.e. making the parties in question better equipped to prevent and deal with threats to their systems. This is done by both listing the minimum security requirements for the security arrangements and risk management framework required for essential infrastructures and requiring that particular incidents and risks that occur in network and information systems of essential infrastructures be reported to the PTA's CERT-IS

team. CERT-IS will assist the parties in handling the incident and ensure appropriate coordination between the parties.

The Act also provides for government supervision of the implementation of the law. As the Act extends to parties in different spheres of society, the following authorities will act as supervisory bodies:

- The Directorate of Health monitors healthcare services.
- The National Energy Authority monitors energy and district heating utilities.
- The Electronic Communications Office of Iceland monitors digital infrastructures and providers of digital services.
- The Icelandic Transport Authority monitors transport operations (by air, water, and road).
- The Central Bank of Iceland monitors banking activities and financial market infrastructures.
- The Environment Agency of Iceland monitors water utilities.

The PTA also acts as an advisory coordination authority. Its role is to ensure, to the extent possible, consistency in government supervision and non-discrimination in the implementation of the law.

Administrative determinations of the PTA in 2020

The Post and Telecom Administration passed 18 formal administrative determinations in 2020. The Rulings Committee for Electronic Communications and Postal Affairs ruled on six cases where PTA decisions had been appealed to the committee. See the overview of all published PTA decisions below.

The PTA has maintained statistics on the outcome of administrative rulings since 2007, when the current organisation of the Administration was adopted. This table shows the decisions up to and including 2020:

Year	PTA decisions	Appealed decisions	Appeal rate	Verdicts total	Rescinded decisions	Upheld decisions	Upheld–appealed ratio
2007	27	9	33%	9	1	8	89%
2008	33	7	21%	7	1	6	86%
2009	23	5	22%	5	0	5	100%
2010	41	10	24%	10	3	7	70%
2011	35	5	14%	5	2	3	60%
2012	40	7	18%	7	1	6	86%
2013	33	4	12%	4	0	4	100%
2014	42	5	12%	5	2	3	60%
2015	37	10	27%	10	2	8	80%
2016	24	4	17%	4	0	4	100%
2017	32	13	41%	13	1	12	92%
2018	28	4	14%	4	1	3	75%
2019	31	7	23%	7	3	4	57%
2020	18	4	22%	4	0	4	100%
Of total	444	94	21%	94	17	77	82%
Af heildarfjölda 100%					**3,8%**		
***Using weighted mean**						**Average percentage upheld***	**81,9%**

Overview of PTA decisions in 2020

16/2020 – Notification from Íslandspóstur ohf. on amendments to the tariff for bulk letters – 30 December 2020

15/2020 – Snerpa's demand for access to Míla's technical equipment storage space – 18 December 2020

33/2019 – PTA evaluation of Sýn hf.'s reserve power in the Öræfajökull natural hazard area – 18 December 2020

32/2019 – PTA evaluation of NOVA's reserve power in the Öræfajökull natural hazard area – 18 December 2020

14/2020 – PTA evaluation of Síminn hf.'s reserve power in the Öræfajökull natural hazard area – 18 December 2020

13/2020 – Appointment of Íslandspóstur ohf. as a universal service provider for countrywide postal services – 11 December 2020

12/2020 – Appointment of 1984 ehf. as an operator of essential services in electronic infrastructures – 18 November 2020

11/2020 – Wholesale rate for call termination in individual mobile networks – 22 October 2020

10/2020 – Wholesale rate for call termination in public telephone networks provided at a fixed location – 22 October 2020

9/2020 – Neyðarlínan ohf. appointed as a universal service provider for telephone and internet services in special cases – 25 September 2020

8/2020 – Procedures to provide information about subscribers– 6 July 2020

7/2020 – Postponement of the entry into effect of Íslandspóstur ohf.'s withdrawal of additional discounts for bulk postage – 1 July 2020

6/2020 – Access to available additional wire in indoor telecoms installation – 22 June 2020

5/2020 – Separation of markets in connection with Míla's leased lines to transmission points – 29 May 2020

4/2020 – Universal service contribution to Neyðarlínan ohf. for 2020 – 29 May 2020

3/2020 – Ban on the use of repeaters – 29 May 2020

2/2020 – Restatement of 365 miðlar hf. operating expenses for the business years 2016-2018 – 20 April 2020

1/2020 – Rejection of the Icelandic Federation of Trade's demand for a revision of ÍSP's tariffs – 14 April 2020

Registered providers of electronic communications networks and service at end of year 2020

Name	Issued/ registered	Services
1819 – Nýr valkostur ehf.	20.6.2014	Directory enquiries services
Ábótinn ehf.	28.3.2003	Data transmission network and services
Advania Iceland ehf.	17.4.2002	Data transmission services
Althingi (Icelandic parliament)	23.3.2015	Transmission of radio and television signals
Alza ehf.	1.9.2017	Data transmission services via wireless and fixed networks
Árvakur hf.	26/1/2015	Directory enquiries services
Ásaljós	18/8/2015	Operation of fixed-line electronic communications network
Austurljós ehf.	5/3/2015	Data transmission network and services
Backbone ehf.	25.8.2010	Data transmission network and services
Bloomberg Finance L.P.	19.7.2007	Line rental services and general network
Boðleið Þjónusta ehf.	1/12/2015	Voice telephony services, mobile telephone services and operation of a fixed-line communications network
Brimrún ehf.	3.4.2008	Data transmission services via satellite
BT Solutions Limited, Iceland office	28.7.2014	Data transmission services
CenturyLink Iceland ehf.	1/12/2015	Operation of fixed-line electronic communications network and data transmission services
Colt Technology Services AB	29/9/2015	Data transmission services
Cronus ehf.	1.10.2019	Transmission of radio and television signals
Cubic Telecom Ltd.	9/8/2018	Operation of fixed-line and wireless electronic communications networks, data transmission via wireless electronic communications networks
Dalaveitur ehf.	14/2/2017	Operation of fixed-line electronic communications network
DataBox ehf.	13.12.2010	Voice telephony services and communications network
Davið og Golíat ehf.	3.5.2010	Voice telephony and data transmission services
DCN Hub ehf.	10.12.2012	Mobile and data transmission services
DIDWW Ireland Limited	19.12.2012	Data transmission and voice telephony services
Digriklettur ehf.	1.4.2019	Operation of fixed-line electronic communications network
DVD-Margmiðlun ehf.	6.2.2004	Operation of radio broadcasting broadband system
Municipality of Eyja- og Miklaholts-hreppur	29/9/2015	Operation of fixed-line electronic communications network
Factor ehf.	30.5.2013	Data transmission network and services
Farice ehf.	2.9.2003	Submarine cable
Ferðaþjónustan Húsafelli ehf.	23.4.2018	Operation of fixed-line electronic communications network
Feris ehf.	6.1.2014	Data transmission services
Fjarskiptafélag Mývatnssveitar ehf.	10/4/2017	Data transmission services via fixed-line electronic communications network
Fjarskiptafélag Reykhólahrepps	9/8/2018	Operation of fixed-line electronic communications network
Fjarskiptafélag Skagabyggðar	8.6.2016	Data transmission network
Fjarskiptafélag Skeiða- og Gnúp-verjahrepps ehf.	8.3.2013	Data transmission network

Fjarskiptafélag Svalbarðshrepps ehf.	14/2/2017	Operation of fixed-line electronic communications network
Fjölnet ehf.	26/10/2001	Voice telephony, data transmission services and network
Gagnaveita Helgafellssveitar ehf.	18/8/2015	Operation of fixed-line electronic communications network
Gagnaveita Hornafjarðar ehf.	13.2.2013	Electronic communications network
Gagnaveita Reykjavíkur ehf.	23.3.2007	Data transmission network and services
Gagnaveita Suðurlands ehf.	9.12.2013	Data transmission services
Gagnaveitan ehf.	8.6.2011	Electronic communications services
GlobalCall ehf.	4.9.2008	Voice telephony services
Halló ehf.	23.5.2014	Directory enquiries services
Hátíðni hf.	24.1.2001	Voice telephony, data transmission services and network
Hitaveita Drangsness	28/3/2019	Operation of fixed-line electronic communications network
Hitaveita Egilsstaða/Fella ehf.	11.9.2018	Operation of fixed-line and wireless communications network, data transmission services via wireless and fixed-line networks and broadcasting of radio and television signals
Hitaveita Tálknafjarðarhrepps	24.6.2015	Data transmission services via fixed-line electronic communications network
Hljóðsmárinn ehf.	24/10/2017	Transmission of radio and television signals
Hópkaup ehf.	28.4.2015	Directory enquiries services
Hótel Laki ehf.	10/4/2017	Operation of fixed-line electronic communications network
Hrafnshóll ehf.	30.1.2019	Operation of fixed-line electronic communications network
Hringdu ehf.	9.11.2010	Voice telephony and data transmission services
Hringiðan ehf./Vortex Inc.	3.12.1998	Voice telephony, data transmission services and network
Húnanet ehf.	23.10.2017	Operation of fixed-line electronic communications network
Municipality of Hvalfjarðarsveit	31.3.2014	Electronic communications network
Icelandair ehf.	14.2.2014	Electronic communications network
IMC Ísland ehf.	27.6.2000	Mobile DSC 1800
Internet á Íslandi hf.	3.2.1998	Electronic communications network, voice telephony and data transmission services
Isavia ohf.	30.12.2010	Voice transmission service for aircraft and operation of fixed-line electronic communications network
Já hf.	21.11.2007	Publication of telephone and address directories Directory enquiries services
Kukl ehf.	20.3.2009	Voice telephony, data transmission services and network
Icelandic Coast Guard	1.1.2011	Management and leasing of NATO fibre optic cable
Leiðarljós ehf.	14/2/2017	Operation of fixed-line electronic communications network
Líf í Mýrdal ehf.	15/9/2014	Operation of fixed-line electronic communications network
Lindin, kristið útvarp	26/1/2015	Transmission of radio and television signals
Ljós og gagnaleiðari ehf.	10/8/2009	Data transmission network
Ljósfesti ehf.	19/12/2016	Operation of fixed-line electronic communications network
Optical fibre for Borgarbyggð	18/10/2019	Operation of fixed-line electronic communications network
Ljóspunktur ehf.	24/10/2017	Operation of fixed-line electronic communications network
Loki Telecom ehf.	4.5.2015	Operation of fixed-line and wireless communications network, data transmission services via wireless and fixed-line networks and broadcasting of radio and television signals
Lýsir ehf.	20.12.2019	Operation of wireless electronic communications network
Magnavík ehf.	1.4.2004	Data transmission services
Martölvan ehf.	26.11.2007	Voice telephony, data transmission services and network
Míla ehf.	4.4.2007	Electronic communications network

Mobiweb Telecom Limited	19/12/2016	Mobile telephony services
Nepal hugbúnaður ehf.	21.2.2005	Data transmission services and wireless electronic communications networks
Netvarp og Sport ehf.	18.7.2017	Transmission of radio and television signals
Netvöktun ehf.	9/8/2018	Voice telephony services, operation of a fixed-line and wireless electronic communication network, data transmission services via fixed-line and wireless networks
Neyðarlínan ohf.	6.10.1999	Voice telephony/emergency service response line
Nordic Networks ehf.	24.11.2016	Submarine cable and data transmission services
Nova hf.	12.7.2006	Voice telephony and data transmission services
OnAir S.A.R.L.	29.4.2008	Mobile communication services on aircraft (MCA)
Opin kerfi hf.	25.2.2011	Data transmission services
Origo hf.	12.12.2011	Data transmission services
Orkufjarskipti hf.	26/10/2001	Electronic communications network
Premis ehf.	24/10/2017	Voice telephony and mobile telephony services, operation of wireless and fixed-line telecommunications network and data transmission services via fixed-line and wireless networks
Protegion ehf.	5.3.2018	Operation of fixed-line electronic communications network
Rafey ehf.	18/8/2015	Operation of fixed-line electronic communications network
Rangárljós	29.8.2016	Operation of fixed-line electronic communications network
Refinitiv Norge A/S	1.9.2017	Data transmission services via fixed-line electronic communications network
Ríkisútvarpið ohf.	29.7.1997	Electronic communications services: radio and TV broadcasting
Sensa ehf.	19/12/2016	Data transmission services via fixed-line electronic communications network
Síminn hf.	30.7.1998	Voice telephony, mobile, data transmission and network, etc.
Sjónvarpsmiðstöðin ehf.	8.10.2009	Data transmission services
Snerpa ehf.	17.8.2000	Electronic communications network, voice telephony and data transmission services
Splitti ehf.	8.7.2019	Voice telephony and mobile services, data transmission via fixed and wireless electronic communications networks and telephone number information service
Stöð 5 ehf.	1.10.2019	Voice telephony and mobile services
Sumarsól ehf.	1/12/2015	Directory enquiries services
Sýn hf.	27.3.2007	Voice telephony services, mobile telephony services, data transmission services and electronic communications network
Tech Support á Íslandi ehf.	3.3.2017	Voice telephony, data transmission services via fixed-line and wireless networks
TELE Greenland A/S	24.6.2008	Submarine cable
Tengir hf.	20.9.2002	Optical fibre network
Tismi BV	5/3/2015	Voice and mobile telephony
TRS ehf.	29.3.2004	Data transmission services
Truphone Limited	22.11.2017	Mobile telephony and data transmission via wireless electronic communications networks
TSC ehf.	18/1/2002	Voice telephony, data transmission services and network
Twilio Ireland Limited	12.7.2019	Voice telephony and mobile services, data transmission via fixed and wireless electronic communications networks and operation of fixed and wireless electronic communications networks
Tölvun ehf.	25.4.2003	Data transmission network and services
Tölvustoð ehf.	15.4.2009	Data transmission services

Vengo ehf.	18/10/2019	Data transmission services via fixed-line electronic communications network
Yellow Mobile B.V.	18.7.2017	Voice and mobile telephony, operation of fixed and wireless electronic communications networks, data transmission via fixed-line and wireless electronic communications networks
Zendesk International Limited	9/8/2018	Cloud-based SMS and VoIP service
Þekking - Tristan hf.	16/1/2004	Data transmission network and services
Þorvaldur Stefánsson	14.10.2014	Maritime data transmission services
Örugg afritun ehf.	18/10/2019	Data transmission services via fixed-line electronic communications network
Öryggisfjarskipti ehf.	6.10.2008	Telecommunications services and network/TETRA

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