



SMART GRID WILL BE RENEWED  
AS PART OF THE  
CORE CLIMATE SOLUTIONS

ELENIA AND SUSTAINABILITY 2018





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This is Elenia's first sustainability report. The reporting includes also the Annual Review 2018.





# Smart grid will be renewed as part of the core of climate solutions

Climate change is the biggest challenge of our time. Adapting to it and putting an end to global warming will demand solutions in several areas of life and business, extensive international cooperation and long-term innovative investments. The energy sector will play a crucial role in this work.

Climate change causes risks to electricity network services and puts them at the core of climate solutions. Day-to-day life in homes, businesses and the society require a smart and functional electricity network. Elenia has shown the way both in Finland and internationally in this regard. We have been introducing smart electricity network innovations into daily use for a couple of decades. Now, we are renewing our smart grid as part of energy-use climate solutions.

In this, Elenia's corporate sustainability report, the first of its kind, we report on what we have achieved in building a smart grid and on what the renewing of reliable network solutions will mean. We also report on how we prevent the impact of extreme weather phenomena on power use, which is something that day-to-day life cannot do without.

Sustainability is the foundation of Elenia's operations. It determines the core of the strategic goals and guides the development of our operations. Electricity distribution and electricity network services are subject to a licence, and therefore, in addition to our customers and stakeholders, we have a responsibility towards the society in general for the results of our work. We have developed our management systems, operations and services, emphasising responsibility and the customer perspective. Our principle is to openly report on the results of our development work and share our expertise and solutions for everyone to use.

In 2018, we participated for the first time in the Global Real Estate Sustainability Benchmark, an assessment of sustainability in the infrastructure sector. The assessment covered the entire range of our business operations and we were awarded a full five stars. The result proves that the sustainability of our operations is at a good level compared to international industry benchmarks.

We have now taken the next step in the development of sustainability to make it an even more systematic part of our management systems that guide our day-to-day work.

During the past year, we have carried out a specification process concerning our sustainability as a whole and in related aspects. We have crystallised the results of the process in our sustainability programme that helps us to focus our operations on the key aspects of sustainability and work even more systematically to achieve our objectives.

The essential topics of our sustainability were ordered into a clear 2x2 matrix by main theme: Customer experience and quality, Continuity of operations and being a forerunner, Safety and well-being and Social impact. You can now read our first sustainability report in which we report on our operations from the point of view of sustainability in an open and transparent way, focusing on the essential topics.

Electricity network services are one of the most important basic systems of infrastructure in society. It is our goal to build our operations on excellent customer experience and quality. Considerable investments in the development of the electricity distribution network secure the smooth running of daily living. Safety and well-being have become increasingly emphasised in our work in recent years.

Our future challenges and key objectives are related to changes in the society. As automation and digitisation proceed and electricity is increasingly involved in work and life, improving the security of supply of electricity is vital.

Elenia has been a pioneer in the construction of a weatherproof network. We have proceeded in accordance with the requirements of our customers and the society. We began to renovate the ageing electricity network to become weatherproof already over a decade ago. Our investments in the electricity network during the past decade exceed EUR 1 billion. This has a strong impact on employment in Elenia's regions: Häme, Pirkanmaa, Central Finland, Southern and



## Sustainability is the foundation of Elenia's operations.

Northern Ostrobothnia. Our investments have provided employment amounting to approximately 10,000 person-years.

In addition to a weatherproof electricity network, the development of smart electricity infrastructure facilitates flexible balancing of production and consumption levels and a new kind of an electricity market based on distributed production of renewable energy. To balance the growth in solar and wind power energy, the smart grid will provide customers with electricity consumption flexibility in the form of automatic and easy-to-use services. We are currently testing this, and this will be able to provide solutions for daily living in the next few years.

Combatting climate change and adjusting to its impacts are a core theme in our sustainability

work. Our investments in the weatherproof electricity network will continue to secure the smooth running of daily living, even under fierce weather phenomena. We mitigate climate change by developing smart grid solutions that increase the efficiency of energy consumption and support the on-going energy transition.

With our responsible work and new solutions, we have provided Finnish society with significant added value. We will continue on this path. Our sustainability programme will guide us towards increasingly positive results from the points of view of our customers, stakeholders and the society in general.

Tapani Liuhala  
CEO





## Transformation of the energy sector combats climate change and transforms electricity markets



Anthropogenic greenhouse gas emissions are a key factor in climate change. Because of this, many countries are committed to restricting their greenhouse gas emissions to a significant extent. The goal of international agreement on climate action is to keep the increase in global average temperature to well below 2°C above pre-industrial levels and the aim is to limit the increase to below 1.5°C.

Reducing emissions from electricity production plays a significant role in combatting climate change. Measures to reduce the emissions of electricity production will significantly increase the amount of wind and solar power – the production of which varies based on weather – in the electricity infrastructure. At the same time, fossil-fuel based electricity production will be removed from the market. This transformation is often referred to as the energy transition.

A significant change has also taken place in customers' attitudes towards their energy use. Many are interested in making diverse value choices with regard to their electricity consumption and in generating the electricity they consume themselves.

Lower costs of technology and various smart solutions improve customers' possibilities to take part in the achievement of climate goals through their own investments. Electricity storage and elec-

tric cars with storage and smart charging functionalities will provide new opportunities for utilising one's own electricity production to the fullest extent or to schedule electricity consumption to take place at the most affordable time. At the same time, homes and individual appliances are becoming smarter, so the electricity consumption of homes can react to the price of electricity, for example, automatically providing customers with benefits.

### SMART GRID MAKES THE ENERGY TRANSITION POSSIBLE

The Finnish electricity system is facing significant changes. Increasing renewable energy, and production varying in accordance with the weather, will transform the intervention logic of the system and the electricity market. The consumption and the production of electricity must be in balance every second. Nowadays, it is mainly production that is adjusted to match the consumption; however with an increase in variable production, consumption will also need to be increasingly adjusted to maintain the power balance.

A complicated system composed of distributed resources cannot be managed without automation and enhanced exchange of information among the different parties. The smart grid functions as a platform for coordinating production and consumption in a cost-efficient manner.

The key challenge faced by the Finnish electricity market in the future is ensuring the security of supply both with regard to electricity generation and electricity distribution networks. The main objective is to build a smart energy system that meets the security of supply obligations. The growth of renewable energy production and the concurrent downscaling of traditional electricity production creates the need for more flexibility in electricity consumption. A smart energy system makes electricity available whenever it is needed and implements this required level of consumption flexibility without disrupting the operations of customers and society.





#### ELENIA IS A FORERUNNER IN SMART GRIDS

For many years now, Elenia has engaged in the determined development of a smart grid that creates the platform for the electricity market of the future. We have already started work to build a next-generation smart metering system. The new system enables more real-time consumption control, which we can later offer to users such as virtual power plant operators in the demand-flexibility markets. In the future, the smart grid can promote the expansion of the commercial demand-flexibility market by providing network-based load control for use in the competitive markets. This makes it possible to provide a growing number of retail customers with access to the demand-flexibility market.

#### SMART GRID MAKES THE ELECTRIFICATION OF TRAFFIC POSSIBLE

Important themes in the development of the electricity markets will include not only renewable energy and demand flexibility but also the growing use of electric vehicles. The share of electric vehicles remains low in Finland for the time being, although this is likely to change in the coming years. Smart grids create new opportunities related to the charging of electric cars and the development of market models. Elenia contributes to these developments.

*Link to the smart grid working group's final report used as a reference: <https://tem.fi/en/working-group-to-explore-smart-grids-potential-for-the-electricity-market>*

#### ELENIA AS A DEVELOPER OF ENERGY-SECTOR SERVICE AND CUSTOMER SERVICE

The strengthening of the customer's position and digitalisation will transform the conventional operating models of electricity markets in the years to come. Comprehensive services that make the customer's day-to-day life easier and promote energy efficiency will reform the electricity market. Elenia is strongly involved in developing the electricity markets and in offering first-rate services to its customers.

Elenia Oy's subsidiary Elenia Palvelut Oy is an energy-sector service provider founded in 2015 that has created a completely new kind of customer service concept for the energy sector. Elenia's customer service concept provides corporate customers with comprehensive energy-sector customer service that not only includes con-

#### Electricity system is facing significant changes.

ventional customer service but also service processes and information systems associated with the provision of customer service. As a strong player in the energy sector, Elenia guarantees high-quality, professional customer service to its customers.

The current customers of Elenia's customer service concept include, in addition to Elenia Oy and Elenia Lämpö Oy, Jyväskylä Energy Ltd, Tampereen Sähkölaitos Oy, Auris Kaasunjakelu Oy and Lahti Energy Ltd. Our aim is to continue to grow the customer service business. In addition to its customer service concept for the energy sector, Elenia Palvelut sees itself as a future partner for the entire energy sector by delivering solutions based on modern technology and expert services to various energy and infrastructure operators in cooperation with its extensive partner network.

As a new service besides its services for the energy sector, Elenia has piloted building an optic fibre network in a few areas during 2019, and decisions on commencing a fibre-optic business will be made based on the results during 2019.

The establishment of Elenia Palvelut and investments in the development of the customer service business have been successful choices. We will revise the strategy of the service business during 2019 and expect the service portfolio to grow. In particular, utilising digitisation in services for the energy sector will be at the core of service development.





## Elenia Oy and Elenia Palvelut Oy

### REVENUE

272.3 M€ / 10.5 M€

### PERSONNEL

177 / 94

### MARKET SHARE

12%

### CUSTOMERS

430,000

### QUALITY

- Asset Management Systems ISO 55001 and PAS 55
- Occupational Health and Safety Management System ISO 45001:2018
- Environmental Management System ISO 14001:2015

### MISSION

Electrifying  
life

### VISIONS

Service and weatherproof  
network

### VALUES

Close to the customer  
Accountable partner  
Achieving together  
Courage to renew

- 
- Elenia Oy's areas of operation
  - Elenia Oy and Elenia Palvelut Oy headquarters
  - Elenia Finance Oyj headquarters

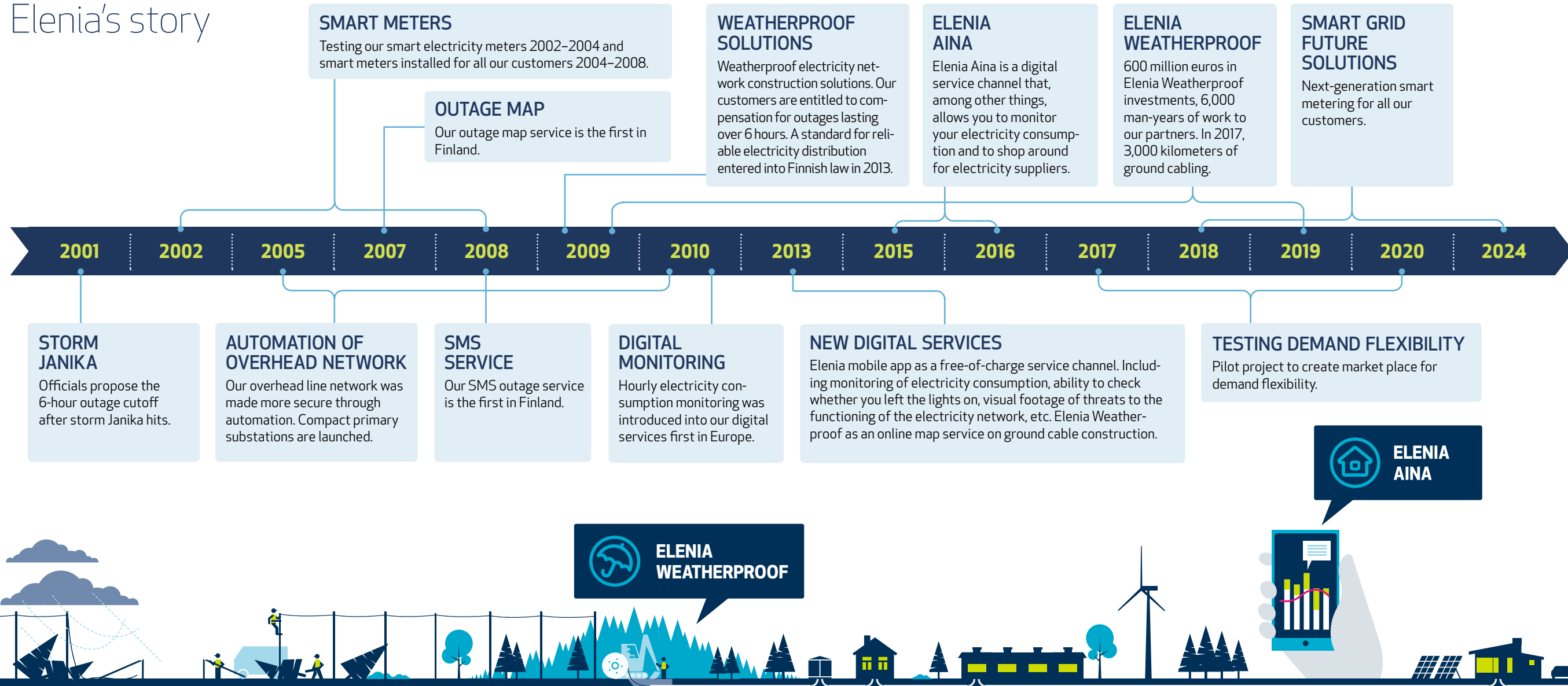
TAMPERE

HELSINKI





# Elenia's story





# Sustainability programme



## CUSTOMER EXPERIENCE AND QUALITY

We care for the smooth  
day-to-day lives of our customers  
by offering safe, high-quality  
and friendly service.



## SAFETY AND WELLBEING AT WORK

We support the wellbeing, health and  
professional development of our personnel.

Our work is safe.



## SOCIAL IMPACT

We create value for the society.



## BUSINESS CONTINUITY AND BEING A FORERUNNER

We ensure the reliability of electricity  
network services under all conditions

We promote the development of a  
sustainable society and way of life.





## Management of responsibility covers all of Elenia's operations

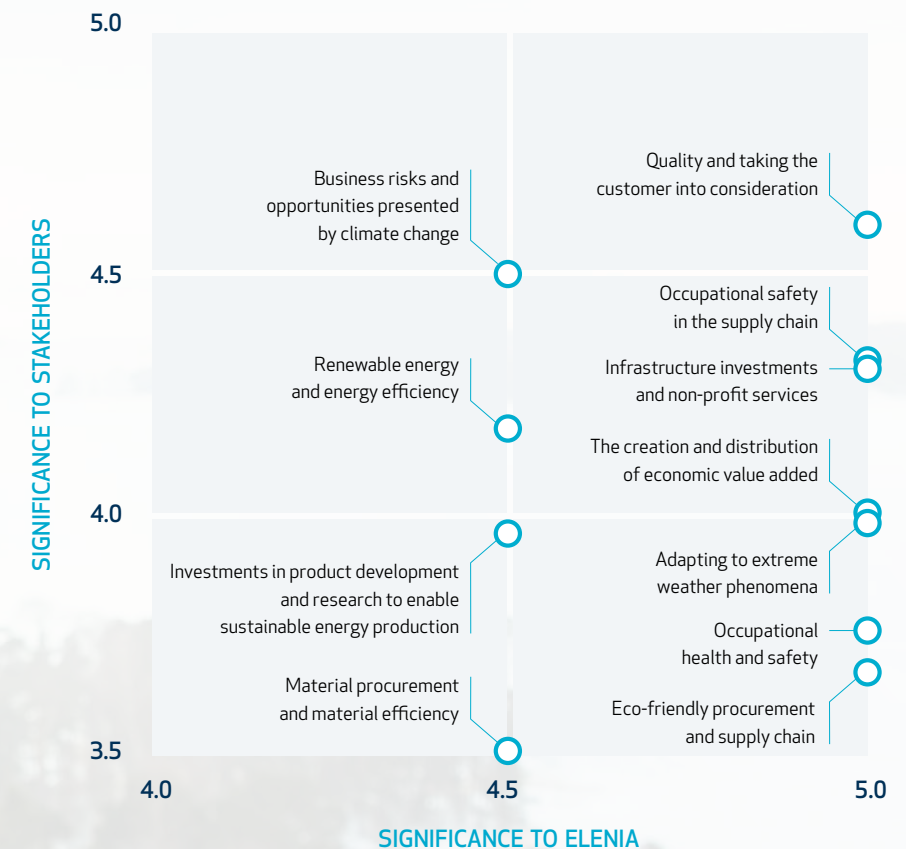
The senior management is responsible for Elenia's responsibility-related work, leads by its own example and creates the prerequisites for each Elenia employee to implement responsibility in their own work in accordance with Elenia's objectives.

At Elenia, the management of responsibility already began during the last decade, when we deployed certified management systems with great determination. Elenia has three certified management systems in use: asset management PAS55 and ISO55001, occupational safety and health ISO 45001 and environment ISO 14001. Alongside these, our operations are guided by the Code of Conduct for Employees and Partners, the policies of the different operating areas and other guidelines and specifications as well as, naturally, legislation. In our day-to-day operations, we implement the principle of continuous

improvement as part of the objectives, measures and audits of the systems. The Management Team reviews the functionality of the management systems and related needs for improvement twice a year in management reviews.

The excellent result achieved in the global GRESB assessment in 2018, encouraged us to complement the continuous development of the responsibility of our service and operations by preparing a joint-responsibility programme for the network business, Elenia Oy, and the service business, Elenia Palvelut Oy, as well as this Corporate Responsibility Report, which is the first of its kind. Elenia's supervisors and experts, covering all of our operations, have extensively taken part in the responsibility project launched in the summer of 2018 by decision of the management.

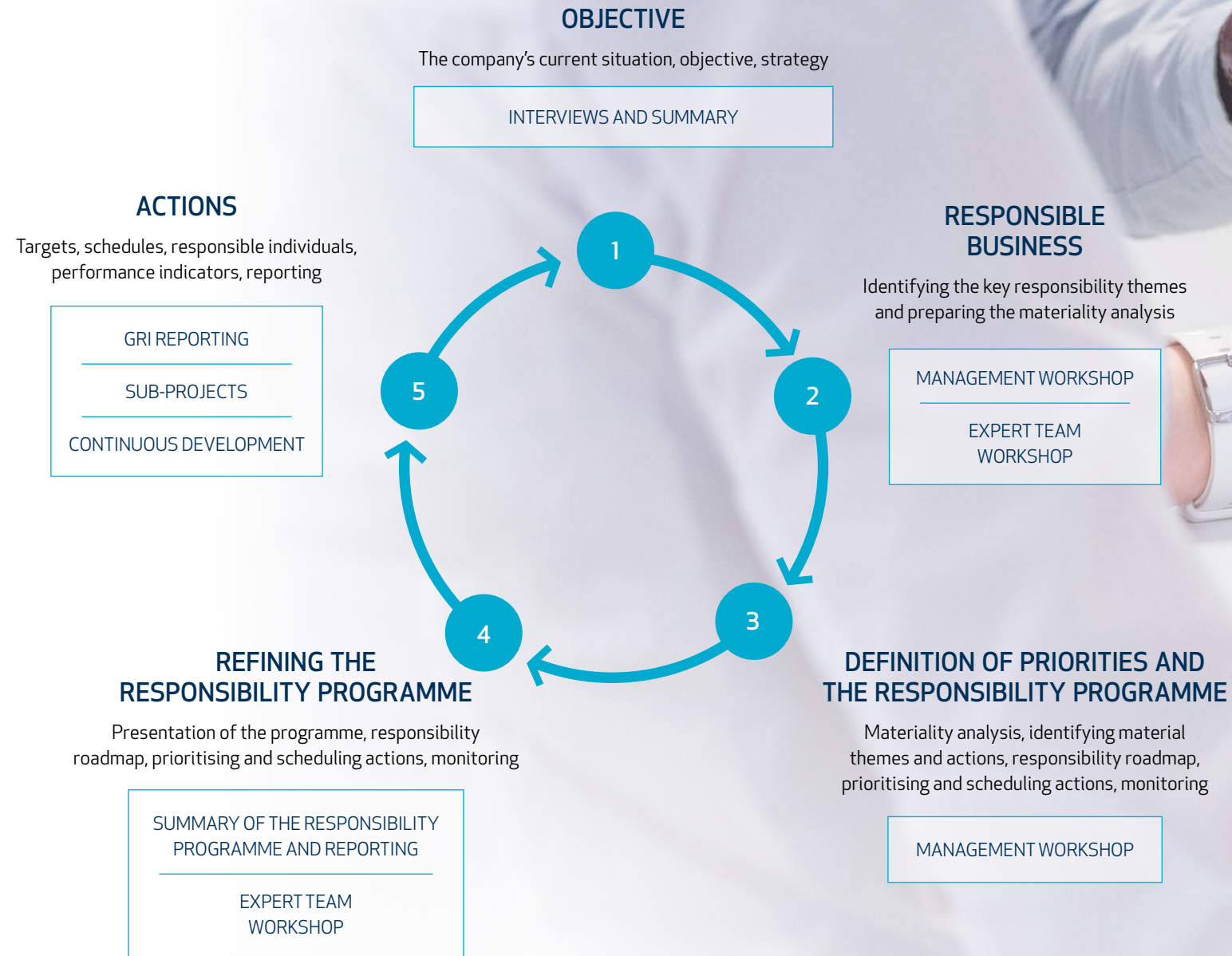
### Materiality matrix





# Building the sustainability programme

The first round of the responsibility programme and reporting was prepared as Elenia's in-house specification by applying GRI's, Global Reporting Initiative, standards. In autumn 2019, the work will continue as planned by involving the views of the personnel and stakeholders regarding the services and operations of Elenia even more extensively. Our responsibility programme and report will provide a strong foundation for embedding responsibility even deeper into our day-to-day work.

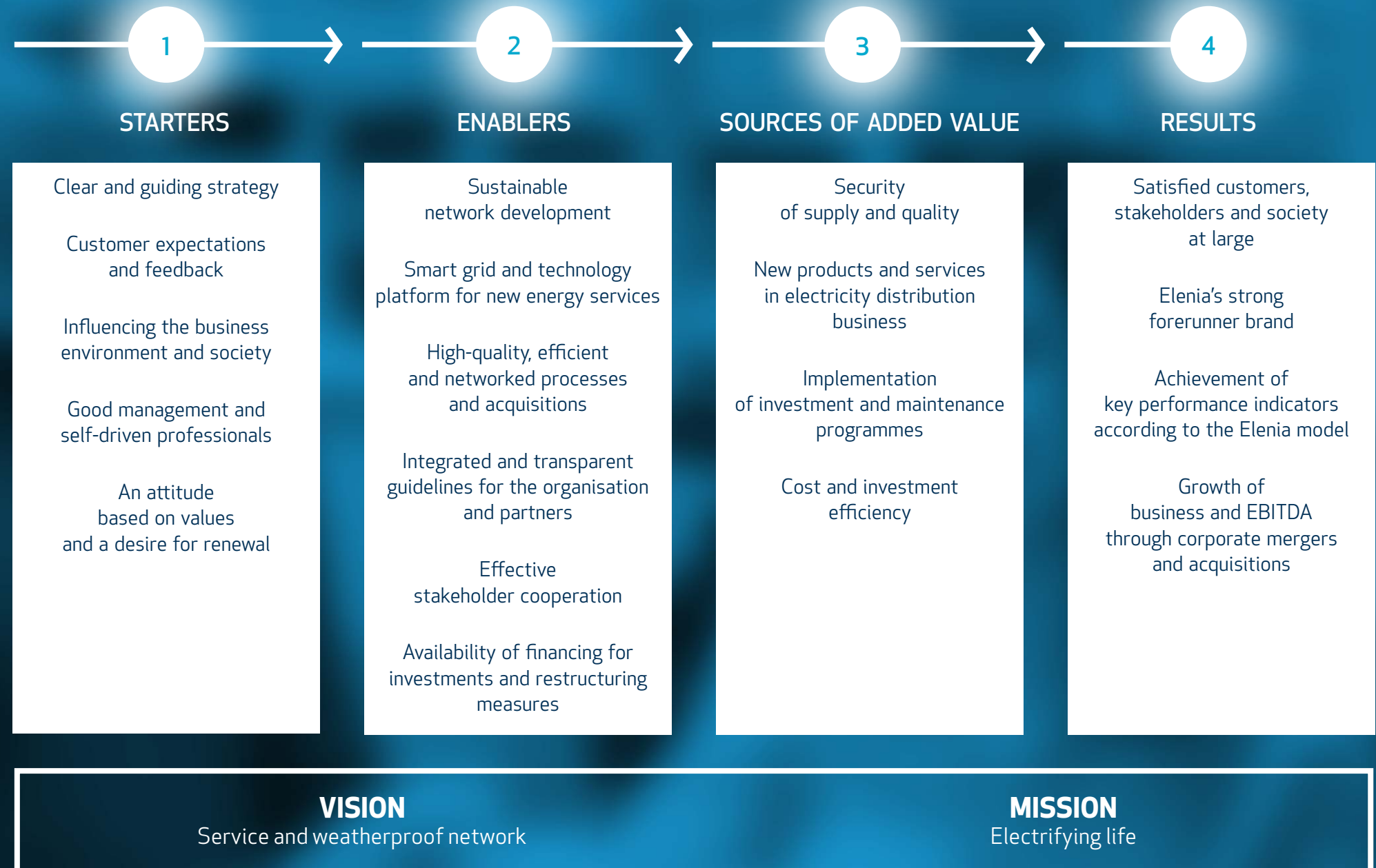


Omaisuuudenhallintajärjestelmät ISO 55001 ja PAS 55  
Työterveys- ja työturvallisuusjärjestelmä ISO 45001:2018  
Ympäristöjärjestelmä ISO 14001:2015



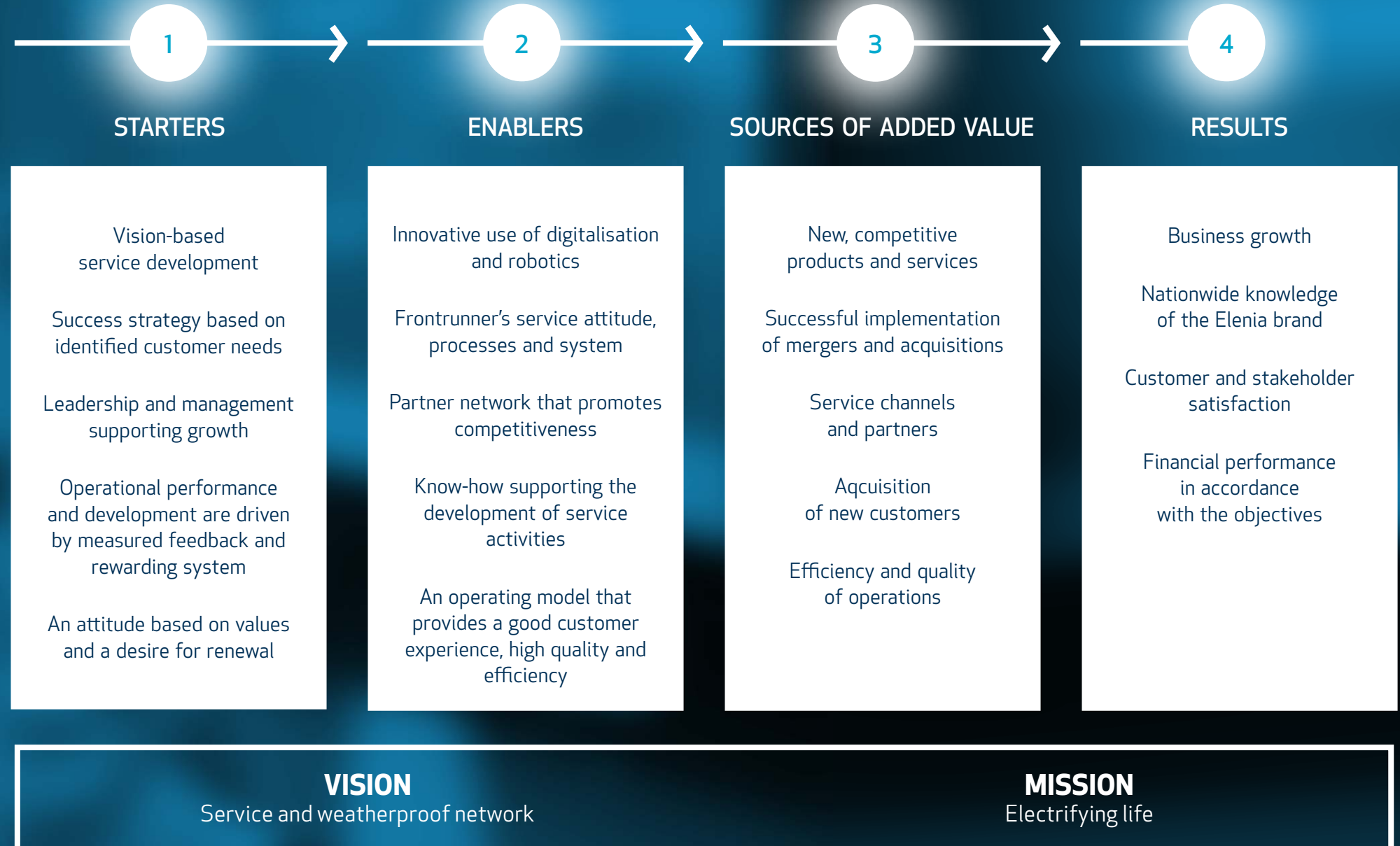


# Elenia Oy's strategy





# Elenia Palvelut Oy's strategy







# Elenia Oy's management system



Asset Management Systems ISO 55001 and PAS 55  
Occupational Health and Safety Management System ISO 45001:2018  
Environmental Management System ISO 14001:2015





## Standardised systems steer our operations

Our occupational health and safety system complies with the ISO 45001 standard. Our aim is for each employee and partner to have a safe, healthy and motivating environment to work in.

We have been using the OHSAS 18001 standard since 2009, so the deployment of the new ISO standard and certification immediately when it enters into force has been our aim for several years. The careful preparation was successful, and Elenia renewed its certification only a few months after the new standard was published in May 2018.

We internally audit the system each year. There was an exception to this in 2018, however, as we conducted a more extensive WHSE audit in cooperation with Pöyry Finland Oy, replacing the internal audit.

The management's commitment to the development of HSE-related affairs received positive feedback in particular in both audits. The development proposals paid attention to communication about safety by increasingly highlighting positive safety content, for example, such as positive safety observations or sharing of good working practices.

> [Occupational Health and Safety Policy \(pdf\)](#)

### RESPONSIBLE MANAGEMENT AND DEVELOPMENT OF NETWORK ASSETS

Elenia's PAS55- and ISO55001-certified asset management system steers the development, construction, operation, maintenance and troubleshooting of the electricity network. With the system, we ensure that we continuously operate, maintain and reform the network to meet the needs of our customers and society even better.

Our asset management system PAS55 was certified for the first time in 2013. The ISO55001 standard was published in 2014, and our asset management system was certified in accordance to that the very same year. After this, the PAS55 and ISO55001 asset management systems were both re-certified in 2016. The next re-certification audit will take place in November 2019.

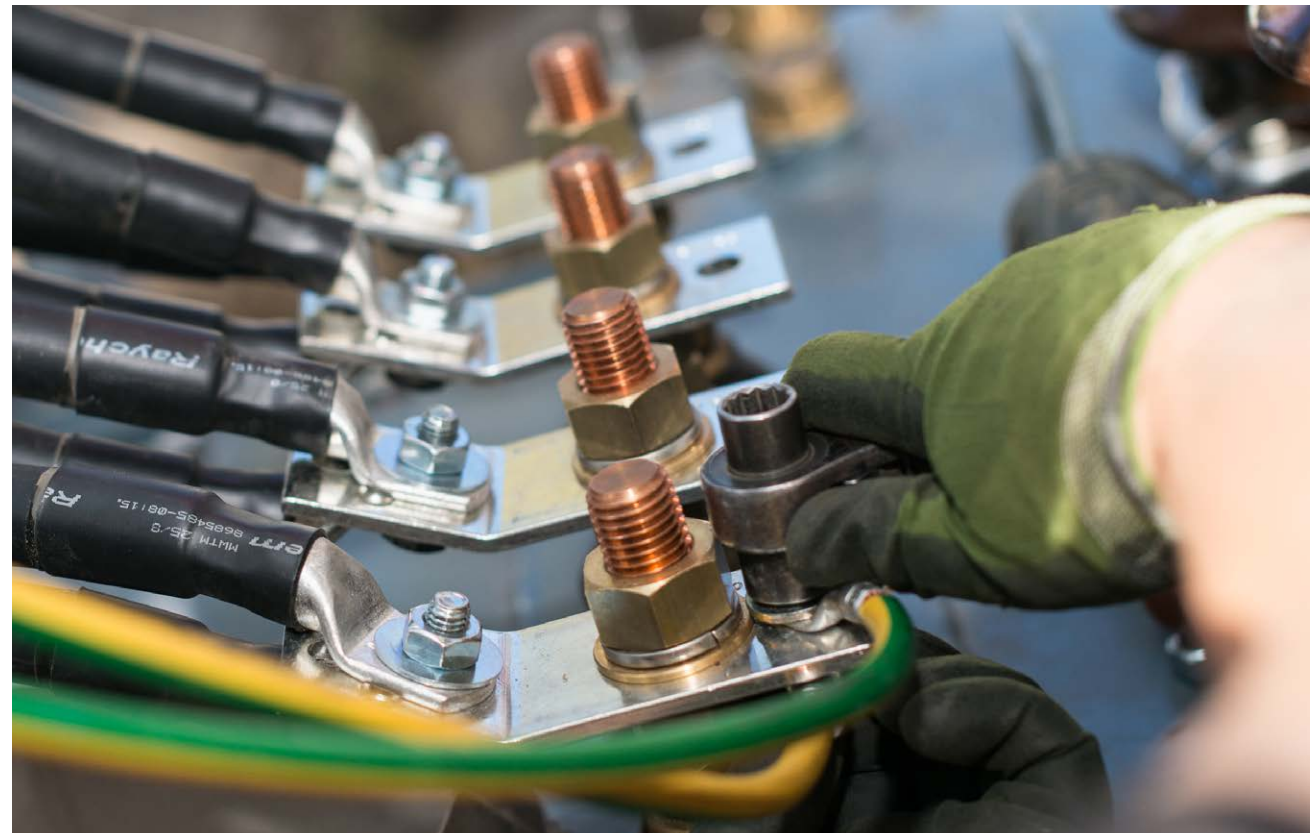
Our asset management system is audited annually both internally and externally. In 2018, Lloyd's Register carried out a system inspection visit in June, and its results again reported that Elenia's network asset management is at a good level and compliant with the standards. We received positive feed-

Operations  
and service  
are based on  
certified  
standards.

back on our work to develop network data traffic, among other things. The audit resulted in new development proposals, such as developing the substation spare part inventories, and we have actively proceeded with it.

We organised the internal audit of the asset management system in October, focusing on reviewing the company's service in power outages. On the whole, the process was considered to work well, and the company's systematic major power disruption operations were particularly lauded. Room for development was seen in e.g. the management of documentation on network component replacements in conjunction with fault repair work.

> [Asset Management Policy \(pdf\)](#)



### PREVENTIVE ENVIRONMENTAL WORK

Elenia's environmental management system complies with the ISO 14001 standard that aims to improve the management of environmental affairs and impact of environmental protection. One of the key tasks of the system is to prevent issues.

The environmental management system was certified in accordance with the ISO 14001:2004 standard in 2008. Regular internal and external system audits began at that time. Two re-certification audits have been conducted after this in 2014 and 2017, when Elenia's environmental management system was audited in accordance with the new ISO 14001:2015 standard.

The environmental management system is audited in the same way as the occupational health and safety system, and the audits have been conducted simultaneously in recent years. In the 2018 external audit and Pöyry Finland Oy's WHSE audit replacing the internal audit, positive feedback was received on the extensive and appropriate documentation and the coverage of preventive measures, in addition to the commitment of the management.

In the external audit, development of the measurement and analysis of environmental affairs was raised as an area of development. The WHSE audit brought up the need for a risk survey of reserve capacity equipment oil leaks and chemical safety assessment of the oil tanks of reserve capacity equipment. These are being implemented.

> [Elenia Oy's Environmental policy](#)





### INDUCTION OF PERSONNEL INTO RESPONSIBILITY

At Elenia, the induction of personnel into responsibility-related themes and guidelines has taken place using the Apprix online learning environment since spring 2018. The new electronic learning environment has allowed studying regardless of time and place, as well as the real-time monitoring of progress. There is always a person designated to be in charge of the subject content of each theme.

The environment is intended for new Elenia employees as part of their induction training, and for old employees as a refresher course. The environment also features induction for external partners.

All Elenia employees take e.g. the following training courses on the theme of responsibility:

- Confidentiality and secrecy
- Ensuring non-discrimination
- Anti-corruption training
- Induction into data protection
- Online induction into the management system
- Online induction into the environmental management system
- Online induction into OSH
- Online induction into the asset management system
- Elenia as a substance-free and smoke-free company
- Code of Conduct for employees

The employees and those in charge of the training themes have welcomed the new environment with great gusto. By March 2019, a total of 1,638 courses had been passed by Elenia employees in the environment. The number will grow further following an internal campaign in the spring. This year and next, the environment will be developed to better support mobile use and the learner's pedagogic process.

### CONTINUOUS DEVELOPMENT OF PARTNERSHIPS – WIN-WIN-WIN

Elenia's operations are based on networked business processes, and partnerships are part of all our business processes. We have been engaged in determined development of partnerships for over 20 years. We have a large network of diverse partners consisting of electricity network construction and maintenance service companies of various sizes as well as Finnish and international suppliers of

materials and systems. Elenia acquires electricity network construction and maintenance services from the market and works in seamless cooperation with its extensive partner network. Our shared goal is the safety of operations, an excellent customer experience, taking environmental aspects into consideration, as well as efficient and high-quality operations.

The core of our partner cooperation is in our key value of "Accountable partner". We demand high levels of responsibility of ourselves and our partners. We also actively care about our own and our shared well-being and safety at work.

We require our partners and their subcontractors to comply with applicable local and international legislation. Elenia is committed to, and also requires its partners and their subcontractors to commit to, complying with Elenia's Code of Conduct, specifying joint, value-based and responsible good business practices. Our Code of Conduct is included in our agreements as an appendix.

Elenia uses responsible partners in its services. We are also an accountable partner ourselves. We jointly develop our ways of working and partner relationships to achieve mutual results and profitability. Our corporate culture encompasses mutual respect for people and expertise. We respect internationally acknowledged human rights and do not take part in anything that breaches them.

We are committed to complying with

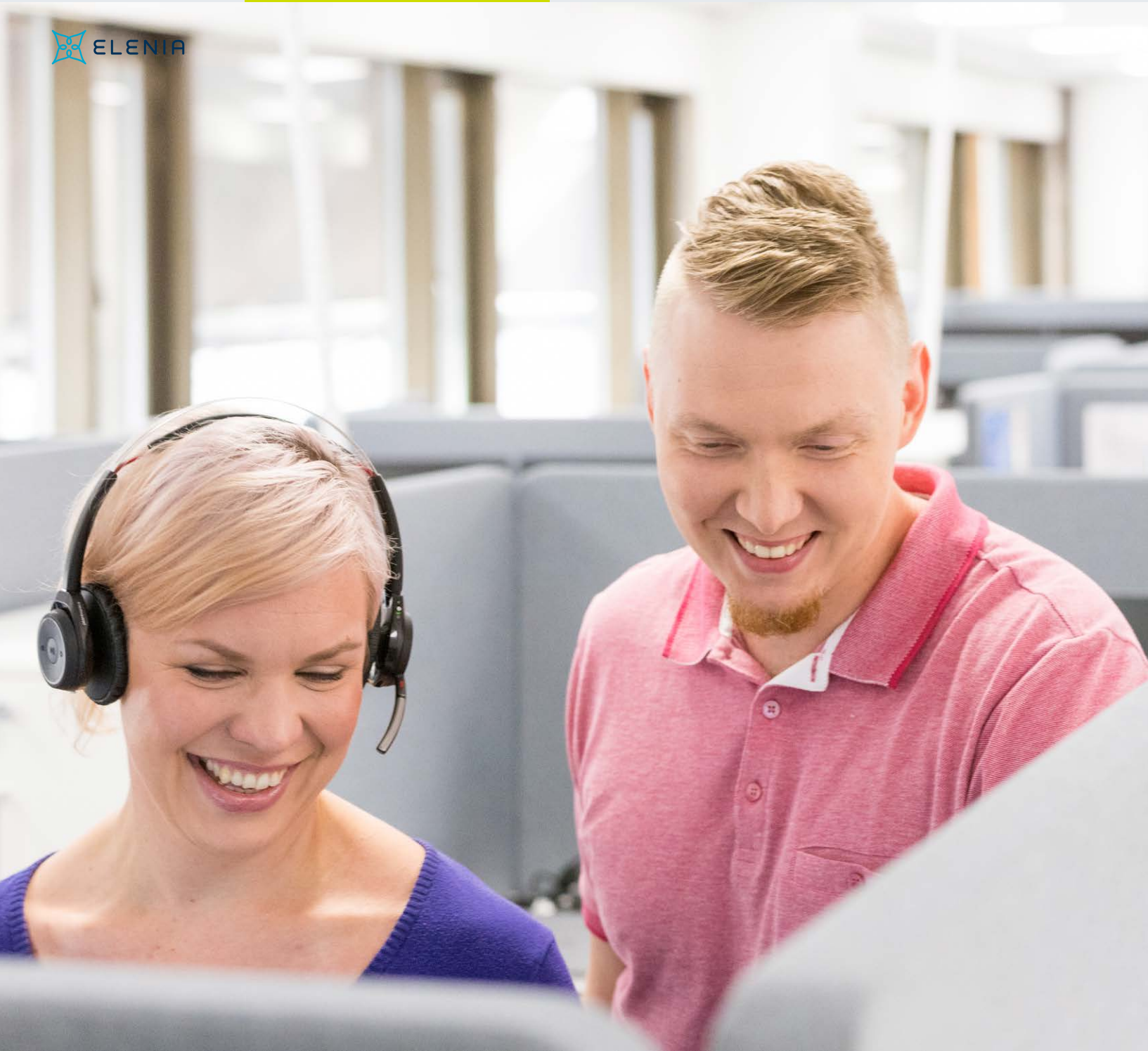
- the ILO Declaration on Fundamental Principles and Rights at Work
- the UN Rio Declaration on Environment and Development, the Convention against Corruption and the principles of the Global Compact Initiative

Our Code of Conduct strengthens our commitment to responsible business practices, which is what we also expect from our partners.

> [Code of Conduct for Partners \(pdf\)](#)







We actively work with our partners to build an equal working community. Positions are gender-neutral, and we have zero tolerance for discrimination due to age, ethnic, religious, social, political or other similar background-related reasons. We consider diversity to promote reform and that the best working communities are built up of different people with differing views.

Appropriate management and processing of confidential information is the foundation of everything we do. Our partners respect our customers' right to privacy. We require that personal data is processed confidentially in compliance with the legislation on personal data.

We are committed to, and also require our partners to commit to, integrity and compliance with all appropriate legislation, regulations and guidelines issued by the authorities in our business. Our own guidelines supplement legislation. We compete fairly and equally, always paying attention to competition legislation. We respect business secrets and the confidentiality of our partner relationships.

We require that the general partners, board members, CEOs or others in comparable positions at our contractual partners or their subcontractors are not disqualified from engaging in commercial activities. Moreover, we do not accept long chains of contractual relationships. A contractor must submit all subcontractors they use for approval and report any changes in them during the agreement period. A contractor's subcontractor can only subcontract work when separately agreed upon between the client and the contractor.

Persons and companies processing confidential information are liable to sign a non-disclosure agreement with us before processing confidential information.

#### **TAKING THE ENVIRONMENT INTO CONSIDERATION WHEN BUILDING AND MAINTAINING THE NETWORK**

Our contractual partners must have an environmental management system that supports Elenia's ISO 14001-based environmental work. The management system must also cover the subcontracting chains. The contractual partner must point out preventive measures to eliminate environmental risks and procedures in case of environmental accidents and damage, as well as report any damage that has occurred.

We prepare project-specific environmental plans to minimise the assessed risks. In practice, the contractual partner prepares a project-specific environmental plan based on its own environmental management system, taking the special nature of the project into consideration. We have a recycling system that complies with the environmental objectives.

The recycling and logistic processes work as planned and are seamless. We promote the utilisation of material dismantled from the electricity network in other infrastructure construction. The management of contaminated soils is based on site-specific plans.





### QUALITY ASSURANCE IN BUILDING AND MAINTAINING THE NETWORK

Self-inspection of work by the contractual partner and “zero fault delivery” are an integral part of the implementation of work and day-to-day activity. Similarly, standardised quality control is integrated into Elenia’s project management. Making safety and environmental aspect of the sites is an integral part of site supervision.

In addition to our in-house project personnel, we perform continuous third-party quality assurance at sites.

- Approximately 300 third-party audits in 2018
- Almost 1,500 site audits by Elenia in 2018
- More than 3,500 self-inspections of work by contractual partners in 2018.

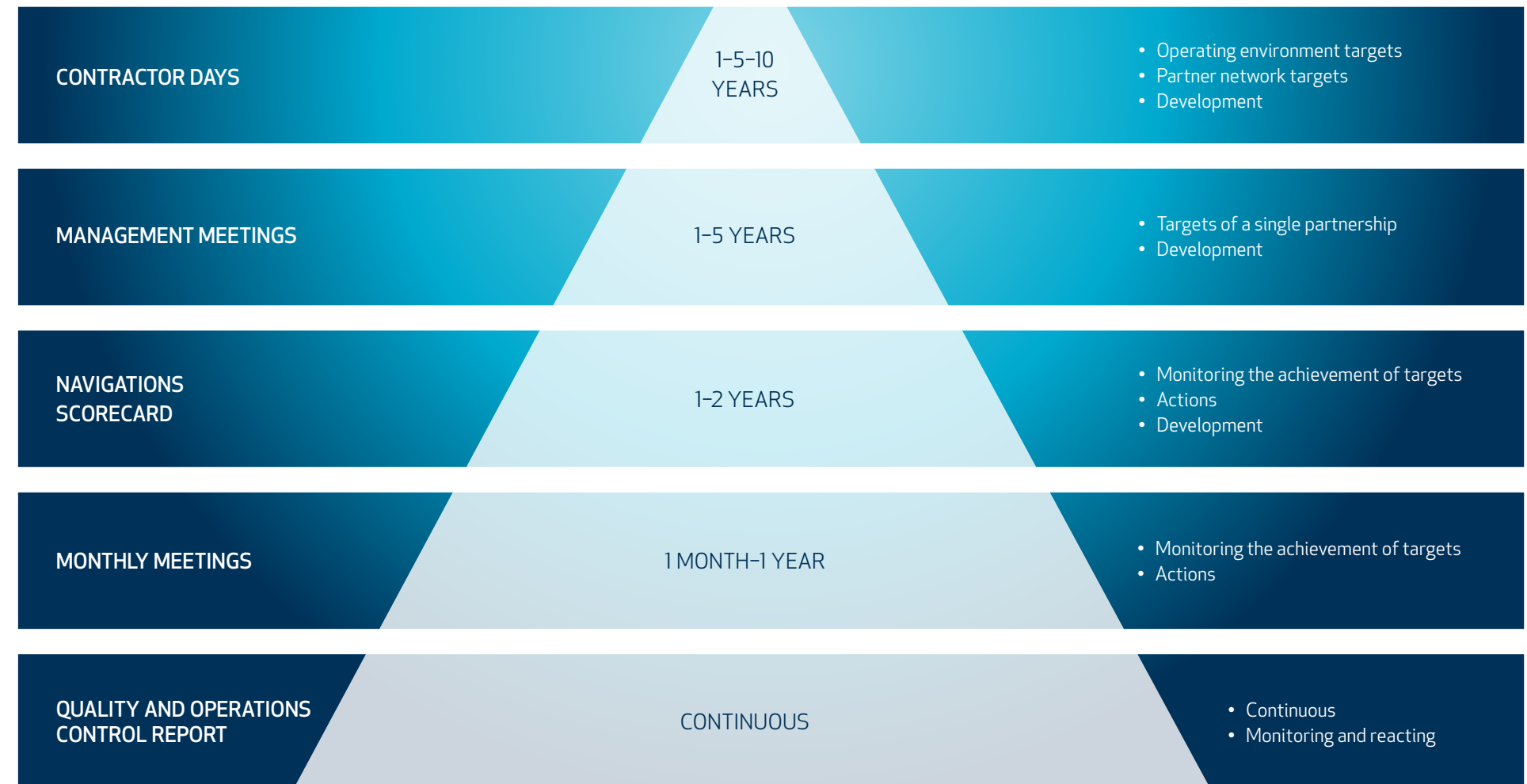
### COOPERATION IN MANAGING PARTNERSHIPS

The management of our partnerships is systematic, and its cornerstones are trust, openness, predictability and activity. We continuously develop the cooperation and responsible management of partners.

We understand the business logic of the different parties in our network and support the success of our partners from a win-win point of view. The most important win refers to the satisfaction of the end customer. We solve mutual challenges without delay in good cooperation, taking both parties’ needs into account. We develop the cooperation through inter-company development projects.

## Partner cooperation

Our regular partner cooperation is based on the cooperation and management model described below.





#### ENSURING COMPETENCE

We regularly ensure, as part of the standardised cooperation, that our contractual partners' employees have the required qualifications in force. We commit our contractual partners to responsible, efficient, safe, customer-oriented, high-quality work through contractual terms and conditions and through induction. During 2017, we adopted a revised interactive partner portal that supports partner cooperation and communications, and it has significantly increased the efficiency of induction and cooperation. We annually organise induction days for our partners on themes such as safety, environment, customer experience, planning and documentation, materials and land use.

#### PARTNER SATISFACTION

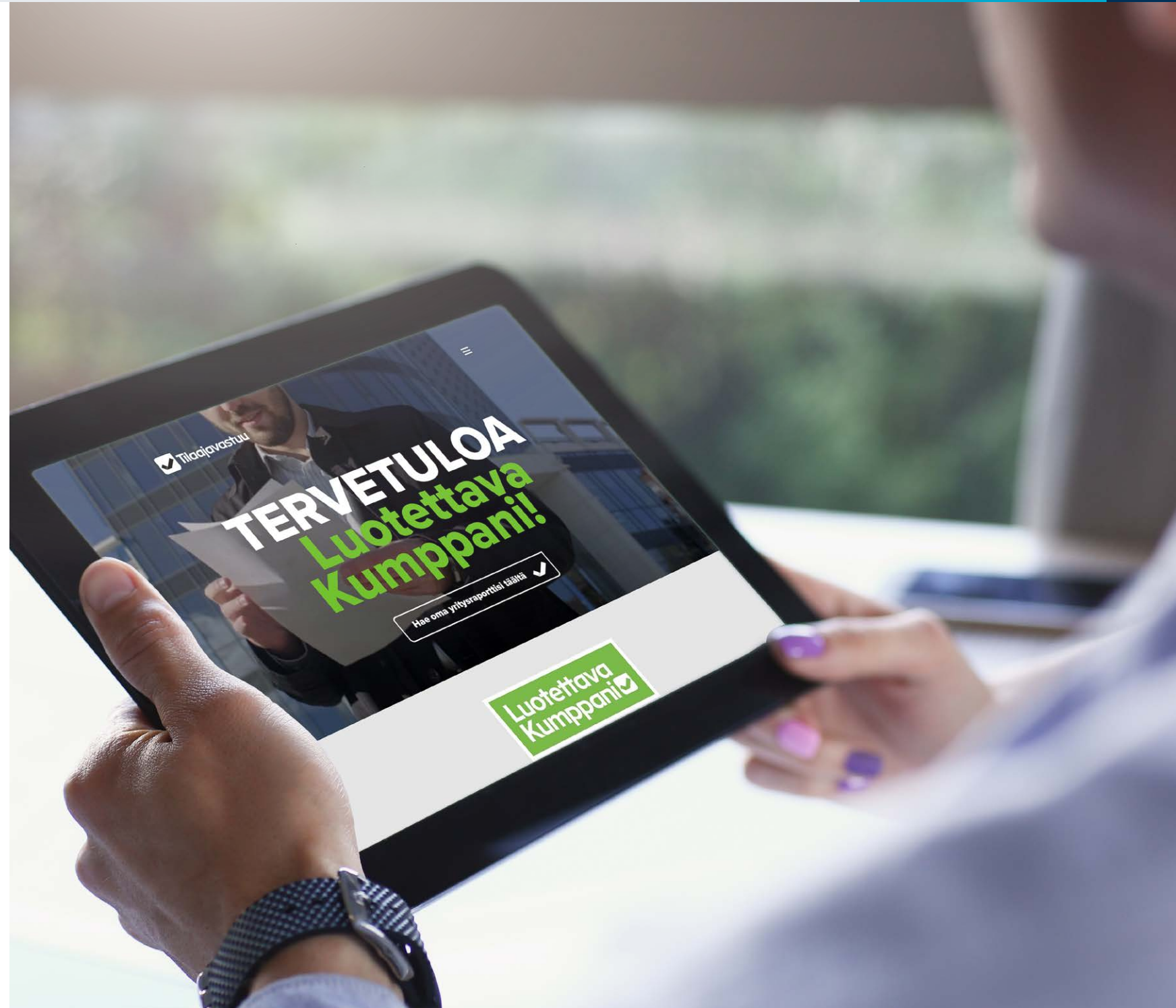
We annually measure the satisfaction of our partners through a survey. In the survey, we assess their satisfaction with the cooperation and how well the partners consider Elenia to care for the satisfaction of end customers and occupational safety of partners' employees. In addition, we ask them to bring up key development targets and prepare an annual plan to develop them. We promote digitalisation in our partner cooperation. Functional mobile system solutions improve the job satisfaction of our partners and also increase operational efficiency from an environmental perspective. For example, the use of cars becomes more efficient and is reduced.

#### STATUTORY REQUIREMENTS FOR CONSTRUCTION

We are committed to acting in such a way that there is no black economy or financial crime occurring in our construction projects. The black economy results in unhealthy competition in the market and impairs the possibilities of lawful companies to operate and provide employment. We comply with the Act on the Contractor's Obligations and Liability When Work is Contracted Out (1233/2006). Elenia's contractors must register with Suomen Tilaa-javastuu's Reliable Partner service. [www.tilaa-javastuu.fi](http://www.tilaa-javastuu.fi). We thereby ensure that our contractual partners fulfil their statutory obligations as contractual parties and employers.

We use the Reliable Partner service to monitor contractors' obligation-related data more extensively than required by the law to ensure that also the data of companies not in a direct contractual relationship with Elenia companies is in order and always up to date.

Elenia's Reliable  
Partner service  
monitors 450  
companies.







Elenia's Reliable Partner service currently monitors 450 separate companies. The service should be developed further so that the extensive partnership network, diverse contract relationships and additional requirements imposed by the client could be even better managed and supervised.

During 2018, we developed the management of our contractors' and subcontractors' insurance data in the Reliable Partner service. In the future, the contractor must ensure that liability insurance details and statutory accident insurance details and any entrepreneur's voluntary accident insurance details are continuously available from the Reliable Partner service. We are currently discussing the further development of the service so that also liability insurance and accident insurance details would be included in the scope of automatic monitoring.

The obligation to provide information about contracts and employees in the construction industry has increased the effectiveness of tax supervision and prevented black economy in Finland. Each month, we report the contract sums paid per project to the Tax Administration. Similarly, the main contractors of our projects report monthly to the Tax Administration information about all employees working at the site. In addition, each person working at Elenia's construction sites must display a photo ID card when at the site, indicating the personal tax number registered with the Tax Administration's tax number registry.

As part of the fight against black economy, reverse VAT liability is applied to construction service sales in Finland. This means that a subcontractor or other supplier charges the buyer of the construction service exclusive of value added tax. The main contractor pays the tax on the entire construction contract chain when selling the completed contract to its end customer. The goal of the system is to avoid value added tax not being paid with regard to the subcontracting chain.

Elenia began to apply reverse VAT liability as of 1 January 2019 with regard to construction services sold to Elenia Palvelut Oy.

Elenia's contractors must submit all subcontractors they use for approval and report any changes in them during the agreement period. A contractor's subcontractor can only subcontract work when separately agreed upon between Elenia and the contractor. Restricting subcontracting chains is one of our ways of preventing black economy.

### FOREIGN LABOUR AT OUR SITES

With regard to foreign employees, we ensure that the terms and conditions of employment comply with the provisions of the Act on Posting Workers and generally applicable collective agreements and the laws and regulations on occupational safety. In particular, we ensure that foreign employees are covered by adequate accident insurance. Before commencing work, a contractual partner must submit a statutory notification on posting employees and their representative in Finland to the occupational health and safety authorities.

### THIS IS HOW STATUTORY OBLIGATIONS ARE MET

Elenia's Code of Conduct specifies the principles and procedures for complying with statutory obligations and requirements. This is how we can ensure that the statutory obligations applicable to Elenia's operations, and amendments to those obligations, are systematically monitored and complied with.



## NEW PROJECT MANAGEMENT MODEL INCREASES OPERATIONAL EFFICIENCY

A survey on the management of Elenia's development projects conducted in early 2018 brought up needs for increasing the fluency of the management of development projects, improving the transparency of project activities and decision-making processes, clarifying the procedures and resource management and harmonising concepts, tools and practices.

Cooperation with Project Institute Finland to build a project management model based on international project management standards began in autumn 2018. Elenia's Ryhti model specifies the practices for the management and decision-making of project activities and the process for managing projects and the project portfolio.

> [More information](#)

The targets for development include increasingly linking the strategy to projects, clarified processes and development of the management of the big picture, more efficient resource management, implementation of chosen projects according to plan and the uniform quality of project execution. The first version of the Ryhti model was completed in 2018. Its deployment is underway in 2019, as we are transitioning to compliance with the model in development projects. The planning of further development is proceeding alongside.





Specific persons have been designated as responsible for the statutory obligations in practice. It is their task to continuously monitor legislation and regulations issued by the authorities in their respective areas of responsibility as well as to ensure that amendments are communicated and that the required measures are taken.

Statutory obligations and compliance with them are also part of the operations of Elenia's business process steering groups and the management teams of units. We systematically ensure that we prepare for amendments in advance, carefully document everything and effectively monitor compliance with the obligations as part of practical work.

We monitor the development of legislation and prepare for amendments through active participation in the activities of the industry association and engagement in cooperation with the authorities supervising Elenia's operations.

The procedures of assessing compliance with statutory obligations are verified in conjunction with internal audits. Elenia requires its partners to comply with statutory obligations.

## ELENIA PALVELUT OY AWARDED THE WWF GREEN OFFICE CERTIFICATE

Elenia Palvelut Oy signed a Green Office agreement with WWF in 2017. Green Office is a practical environmental management system for offices. Its aim is to reduce the ecological footprint of the workplace and decreasing carbon dioxide and greenhouse gas emissions.

Elenia Palvelut was awarded the Green Office certificate in August 2018. WWF's Green Office specialist audited the office environmental programme, waste collection points and eco-friendliness of office supplies. Elenia Palvelut was praised for, among other things, its comprehensive environmental programme, assessment of environmental aspects, environmental training of the personnel, energy savings at the office, paper saving and cleaning. Room for development was

seen in organic products for catering and coffee dispensers, lack of glass and metal sorting and low use of recycled paper.

A Green Office must specify a minimum of three objectives for annual follow-up. Elenia Palvelut aims to reduce paper consumption and fuel consumption in commuting and to improve the results of the consumption habit indicator measuring the environmental awareness and practices of the working community. In the first two, the 5% improvement goal was not reached during the first reporting period. The results of the consumption habit indicator improved by as much as 13.5% on the previous year. In 2019, Elenia Palvelut's environmental programme will focus on traffic, communications and food.







## SAFETY AND WELLBEING AT WORK

We support the wellbeing, health and professional development of our personnel.



Our work is safe.

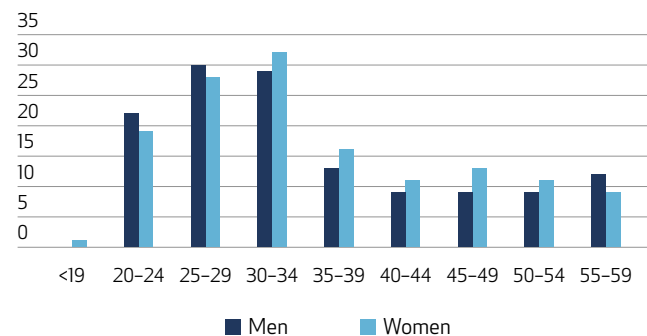


## Elenia – my choice, every day

Elenia Oy, Elenia Palvelut Oy and Elenia Finance Oyj personnel 2018:  
women 48%, men 52%. Elenia Oy: women 28.8%, men 71.2%.

Companies' age average: 38.9 years, women 39.9 years, men 37.9

### AGE DISTRIBUTION 31.12.2018 ELENIA OY, ELENIA PALVELUT OY AND ELENIA FINANCE OYJ



A process to reform the HR strategy was launched by assignment of the management at the beginning of 2018. The aim was to prepare a roadmap to assist in the development of successful recruitment, positive employee experience, well-being at work and capabilities in the years to come. At the same time, the aim was to define the HR policy with which we will respond to future business challenges.

Already at an early stage, we decided to create Elenia's talent strategy instead of conventional training and HR strategy. A common vision and strategic objective for the strategy work was specified in spring 2018 in a joint workshop for the supervisors and management. The strategic focal points and proposed guidelines were specified based on the vision through brainstorming by a background group comprised of representatives for the personnel. The role of HR was to convene the background group and gather ideas.

The framework for the talent strategy was defined by a management workshop in which ideas in a development stage were crystallised. The involvement of the personnel in the process will continue with an induction into the strategy in all teams at Elenia. This way, we will ensure that everyone can take a stand on the content and measures of the talent strategy. At the same time, the team round will function as the first audit of the talent strategy. After this, the background group will further refine any aspects that emerged. We will later discuss the talent strategy in an information event for the personnel and upload it to the intranet, and it will be available to everyone.

### WE MAKE NO COMPROMISE OVER SAFETY

We continuously develop safety, as safety is one of the key indicators and competitive factors of our operations. In 2018, Elenia certified its occupational health and safety management system in accordance with the new ISO 45001:2018 standard, and we started the TEKO Returning home safely project to develop occupational safety to a new level. In the project, we have adopted a new electronic learning environment for partners and subcontractors and developed the management of the level of safety at sites and processing of safety observations, as well as created a new safety culture also through gamification.

Everyone observing near-miss situations and safety risks and learning the lessons from them and from accidents is important

to developing occupational safety. We report on safety observations on a monthly basis, both for our in-house work and the work of our partners. The reporting includes Elenia's and partners' joint lost-time injury frequency, as for Elenia, everyone's safety is equally important.

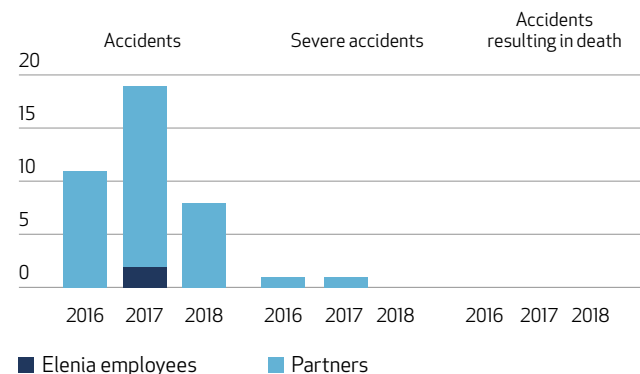
As of the beginning of 2019, we also began to report the TRIF, Total Recordable Injury Frequency, describing all accidents requiring treatment per one million hours worked. It also takes into account minor injuries not acknowledged in LTIF. This way, we will obtain an even better view of the safety of our operating environment in the future.

Safety observations are an important part of preventing accidents. We have succeeded in increasing their number year after

LTIF*	2016	2017	2018
Elenia employees	0	4.1	0
Partners	5.6	12.1	7
Total	4.1	10	5.2

\* LTIF = (Accidents \* 1,000,000 h) / Hours worked

### DEVELOPMENT OF SAFETY

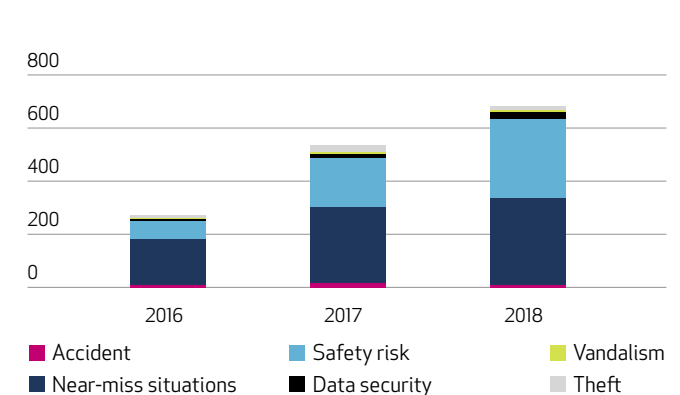


year. We have added a new observed category for 2019, positive safety observations. With it, we will also positively bring up safety-related matters and can distribute information about e.g. safer working practices.

### OBSERVED CASES

- Accidents
- Near-miss situations
- Safety observations, risks, shortcomings
- Positive safety observations
- Data security observations
- Threats
- Vandalism
- Thefts

### SAFETY OBSERVATIONS







### ALL EMPLOYEES ARE COVERED BY OCCUPATIONAL HEALTHCARE SERVICES

Occupational healthcare is part of occupational safety. We promote health, maintain capacity for work and prevent work-related and workplace condition-related hazards through cooperation with occupational healthcare experts. Every Elenia employee is included in the scope of occupational healthcare in their place of employment, regardless of where they have permanent residence.

The occupational healthcare provided to the personnel is based on an occupational healthcare plan prepared for a period of 3–5 years. It specifies the extent of occupational healthcare and scope of medical care offered by the occupational healthcare partner. The plan also includes joint measures, measurements or projects supporting occupational health. The annually updated action plan is available to the personnel on the intranet, and it is annually reviewed by occupational health and safety delegations.

We quarterly monitor the implementation of occupational healthcare together with occupational healthcare services. For example, we implemented the EleniaFit programme with the occupational healthcare services in 2018, which was a personal training programme for the risk group chosen by occupational healthcare services to support their well-being. In spring 2019, we will launch a neck and back training programme targeting those with symptoms based on a survey conducted by occupational healthcare services.

### TOWARDS STRATEGIC WORKING CAPACITY MANAGEMENT THROUGH QUADRIPARTITE COOPERATION

Elenia has a long history of the strategic implementation of well-being at work supporting work capacity. Well-being at work has been developed with the support of the employment pension insurance company Ilmarinen in the form of the Elenia Tahto well-being programme. The programme involves specifying focal areas for 2–3 years and concrete projects to develop well-being together with Ilmarinen.

In 2017 and 2018, for example, the focal point of the Elenia Tahto programme was on developing the management and interaction culture of the working community in a coaching-like direction. In addition to the supervisors and management, the entire personnel was trained in a coaching-like operating culture. The employees can vote

for the Elenia coach and mate of the year using joint criteria, and they are awarded a "Smile Statue".

The cooperation with Ilmarinen has been expanded into quadripartite cooperation. Each year, we review the Elenia Tahto plan and the indicators of its implementation with the employment pension insurance companies Varma and Ilmarinen, Finla Työterveys and Aon Finland. The quadripartite cooperation allows more multi-perspective work capacity management and utilisation of best practices in preventing challenges to work capacity.

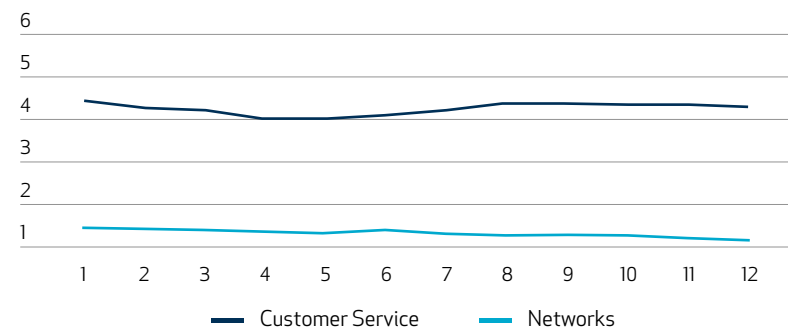
### JOINT RESPONSIBILITY FOR WORKING CAPACITY

At Elenia, the employer, employees and occupational healthcare services have agreed on supervisory work to support work capacity, early intervention, monitoring of the amount of sick leave and support for returning to work. Regular preventive safety work workplace surveys are carried out by occupational healthcare services, and the occupational health and safety delegation reviews the reports and action proposals. They are also distributed to the personnel for information and published on the intranet.

At the fully renovated Tampere office, we have invested particularly in ergonomics and prerequisites for working in an open-plan office. Each employee has an electric desk and, if they wish, noise-cancelling headphones. An occupational physical therapist assists in adjustments to screen-based work and desk ergonomics. There is weekly guided break exercise in the breakrooms, with wall bars and exercise equipment in use.

In 2018, we revised the early intervention models, and the supervisors have been trained in its principles. The spirit is that in addition to supervisors, also co-workers

### SICK LEAVE 2018, %; rolling 12MONTHS





are liable to care and intervene if they observe issues with a team-mate's day-to-day work. Occupational health services function as a partner in case of challenges to work capacity or health. A joint occupational health and safety delegation of the personnel and employer quarterly monitors working conditions using an extensive set of indicators. We report on absence due to sickness and accident data regularly to the owners. The amount of sick leaves is also regularly reviewed by joint occupational healthcare meetings, the occupational health and safety delegation, statutory employer-employee cooperation committee and the Management Team. In recent years, sick leave rates have been very moderate at Elenia and below the industry average.

We measure wellbeing at work at Elenia Oy and Finance Oy once a year using Corporate Spirit Oy's PeoplePower research model. The employees are strongly committed to engagement, and the response rate of the survey is always astonishing; in 2018, for example, it was 94.5%. The PeoplePower index of the survey corresponds to the average among Finnish expert companies, 70.9.

An annual atmosphere survey is conducted at Elenia Palvelut Oy using the Siqni survey. The strengths of the survey include pleasant

and fair immediate supervisors, a working environment in which people can be themselves and a strong team spirit in the workplace. On the other hand, the employees' development opportunities and job security were considered to be the most important targets for development.

Based on the surveys, we have adjusted supervisory work in the teams towards a coaching direction by developing joint basic rules and interaction with the Koutsit ja kaverit (Coaches and mates) project. Challenges remain with regard to the work load. We are seeking solutions to this with the Ryhti project model and new resource planning tools, among others.

Alongside the annual measurements, we conduct a monthly HR pulse measurement of the current moods. The management and supervisors review the results in their teams, and a summary is published on the intranet.

#### COOPERATION WITH THE PERSONNEL

Elenia has an active statutory employer-employee cooperation committee that convenes four times a year. In addition to representatives of the company, the committee is comprised of delegates

appointed by the personnel, namely the shop steward of Elenia Palvelut Oy's white-collar employees and the shop stewards of Elenia Oy's white-collar employees and senior white-collar employees.

At Elenia, the aim of the employer-employee cooperation is to provide the personnel with an opportunity to influence decisions in their work and working conditions and to promote the quality of working life, well-being at work, impact and economy of operations.

#### OCCUPATIONAL HEALTH AND SAFETY COMMITTEE, CLEAR PRINCIPLES

The aim of occupational health and safety is to guarantee safe and healthy working conditions and support the maintenance of the employees' work capacity. Occupational health and safety is a continuous process in which we monitor the state of the working environment, foresee the impacts of changes and rectify shortcomings.

Cooperation in matters relating to occupational health and safety is organised by way of a joint occupational health and safety committee of Elenia Oy, Elenia Palvelut Oy and Elenia Finance Oy, convening four times a year. The personnel groups appoint their representatives to the occupational health and safety committee from among senior white-collar employees and white-collar employees at Elenia Oy and a representative of Elenia Palvelut Oy.

Equality is one of Elenia's key principles. In order to ensure a good and equal operating culture, we have the WhistleBlow channel for reporting any misdemeanours. It is applied to situations in which someone feels that they cannot file a report via the normal line organisation. Our principle is having zero tolerance of inappropriate treatment, bullying or harassment.

#### RECREATIONAL COMMITTEE, ACTIVE DEVELOPER OF WELL-BEING

We support the well-being at work of the personnel each year with a grant used by the personnel through activities organised by the recreational committee. The aim of the recreational activities sponsored by the company is to maintain and develop the physical, mental and social well-being of the personnel. The recreational activities include sports associated with maintaining physical fitness and culture associated with maintaining mental well-being. The company also offers its facilities for leisure activities and purchases equipment of many types.

## FRUIT AND OPERATIONAL SOLUTIONS

In addition to normal lunch benefit, we offer fruit catering for our personnel twice a week. As of May 2019, we will offer communal morning porridge to our employees on Mondays. Even though small stimuli have impacts on well-being at work, the most significant impact on well-being is from the low-hierarchy working community, flexible working hour solutions and remote work opportunities.

During 2019, we will particularly develop the coordination of work and family life and offer new solutions to meet the needs of our employees in their busy years. In future years, we will focus well-being at work measures on supporting recovery from work; among other things, we will introduce a recovery survey, work load measurements and mental work-related information events.



Pauliina and Heikki were awarded the 2018 Smile Statues





## TEKO – Returning home healthy and Safety Manifesto

Our standardised safety follow-up is integrated into site supervision, and there is no excuse for compromising safety. Contractors must exercise systematic and functional safety supervision. The contractor must be able to prove the quality of its operations itself. Project-specific safety plans and risk assessments are prepared for all projects. The contractor must report all accidents, near-misses and safety observations that have occurred in work for Elenia in accordance with the agreed procedure.

The main performance obligations of our contractors include preparing environmental, safety, quality and communications plans. The contractor must provide its employees and subcontractors and any other persons visiting the site with all safety guidance required by laws, decrees and regulations.

### THE SAFETY MANIFESTO INCREASES THE LEVEL OF SAFETY CULTURE

Our aim is for each employee and partner to have a healthy and safe working environment. In conjunction with our TEKOs Returning home safely project, we published a joint declaration of strategic intent for a safe working environment, the Safety manifesto, of Elenia's network construction, substation, regional network and tree management partners.

When the TEKOs project was launched in August 2018, we quickly noticed that the success of the project is determined by how we succeed in influencing attitudes. When working with partners, we saw how our partners are struggling with the same challenges. We began to prepare the joint Safety manifesto with our main contrac-

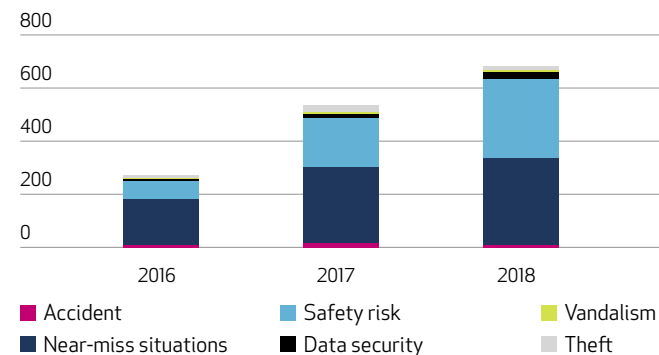
tors, aiming to show that we are jointly committed to safety work and that we require our employees and subcontractors to demonstrate similar activity aiming at safety.

The CEOs signed the Safety manifesto at Elenia's partner days in January 2019. It involves 42 partner companies, and including subcontractors, the manifesto covers approximately 1,000 employees. The signatories to the Safety manifesto commit both personally and on behalf of the companies they represent, their employees and subcontractors, to promoting a culture of safety and safe operating models. In the future, our partners can join it by their CEO signing it.

The target is clear: Everyone is entitled to return home healthy after work. The joint manifesto proves that this is the strategic intent of the employer and the management. We request everyone to assume responsibility, follow safety regulations, supervise that their co-workers follow them, report deviations and, if necessary, refuse to work if the conditions do not allow working safely.

We believe that we will achieve a working environment in which safety is the first and last thing in an employee's mind.

### SAFETY OBSERVATIONS



## SAFETY MANIFESTO

By signing this document, we commit both personally and on behalf of the companies we represent, their employees and subcontractors, to promoting a culture of safety, to developing safety practices and to actively ensuring that the aspects listed below are observed.

### Objective

We will lead, develop and monitor our operating practices and our safety culture to ensure there are no further occupational accidents.

### Prerequisites

We will ensure that all persons working at our sites have the necessary knowledge, understanding and the ability to implement safe and healthy practices in their daily work. We will ensure that a culture of safety is observed in our work environments, observing and preventing malpractices and, if necessary, halting work operations in case sufficient safety levels cannot be ensured. We will ensure that all persons working at work sites, including subcontractors, receive an appropriate induction for their work tasks, their implementation and to safety documentation.

### Practice

We will ensure that all persons working at a work site wear the required personal protective equipment while on site, and that all personnel have valid qualifications. We will ensure that all persons working at a work site have access to appropriate, certified and safe tools and methods at all times. We will observe all relevant laws, authority regulations, industry standards and safe practices. We will constantly monitor and promote the safety of our work sites, ensuring the safety of third parties as well as of employees.

### Learning

We will report and analyse all accidents and potentially dangerous situations that take place at our work sites in order to learn from them and to prevent them in the future. Additionally, all accidents will be covered with the CEOs of the companies concerned with no unnecessary delays. We will constantly monitor our own progress in reaching our set safety objectives. Safety is a shared issue, and with this manifesto we appeal to each party operating in our shared work environment. We hereby commit to these safety guidelines and to only using subcontractors who are willing to commit to the terms and conditions of this contract. In this way, we will ensure that all our employees get to leave our sites and go home healthy at the end of their working day.



## CUSTOMER EXPERIENCE AND QUALITY

We care for the smooth  
day-to-day lives of our customers  
by offering safe, high-quality  
and friendly service.





## Elenia's services for customers

- We deliver electricity for our customers' use.
- We take care of the maintenance, clearance and safety of the electricity network.
- We are responsible for the electricity network monitoring and outage service 24 hours a day.
- We deliver a new electricity connection and adjust electricity connections as necessary.
- We meter customers' electricity consumption and deliver the data to electricity suppliers.
- We take care of customers' change of electricity supplier.
- We take care of billing.
- We offer hourly consumption data to the customer as a mobile service.
- We develop e-services and a smart grid.
- We provide free information on power cables and guidance for felling trees in the vicinity of the electricity network.

DSO Elenia had 430,000 customers at the end of 2018. This represents an increase of approximately 1.2% from the previous year. The rate of growth was similar to the previous year, 2017. The volume of electricity distribution has been growing moderately in recent years. The amount of electricity distribution for 2018 totalled 6,439 GWh, which is 1.5% more than in 2017.

### CONTINUOUS IMPROVEMENT OF THE CUSTOMER EXPERIENCE

Our aim is to provide our customers with a successful experience in our service, whether it is about connecting to the electricity network, building a weatherproof electricity network, rectifying a power outage or electricity use advisory services. In a successful customer experience, the customer experiences high-quality, skilled energy-sector customer service that takes the customer's needs into account.

The starting point of the development of the customer experience is both Elenia and the partner network understanding customer needs and expectations. Customer satisfaction is one of the most important indicators of success, and we regularly measure it. We measure how well Elenia's operations meet the customer's expectations from several points of view. We conduct satisfaction surveys directly in conjunction with delivering our service. We use the results to reform our services to be customer-oriented. We also process the results with our partners. They have a direct impact on the quality scores of the partners and further on the choice of partners and partners' bonuses.

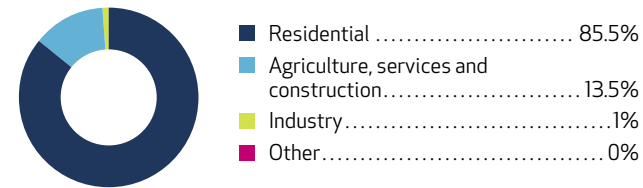
We separately measure e.g. the satisfaction of customers who have experienced a fault with fault management and service, the satisfaction of customers who have ordered a new electricity connection with the connection process, customer satisfaction with the construction of the weatherproof electricity connection and terrain planning, as well as the success of tree management projects from the point of view of land owners.

Indicators of our customer experience in diverse service situations and the service channels used include the Net Promoter Score (NPS), customer service agent's service attitude, comprehensibility of service, ease of service use and resolution rate.

We monitor customer experience results on a monthly level, as well as individual deviations in survey responses daily in order

### CUSTOMER SEGMENTS AND DISTRIBUTION VOLUMES, ELENIA OY

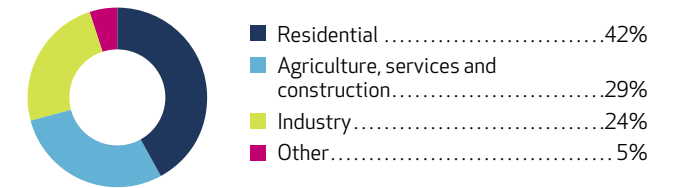
#### CUSTOMER SEGMENTS



to be able to respond to them without delay. In analysing the results, we focus on identifying the root causes of deviations and thereby locating successes and targets for development in our services. We monitor the results of customer service at the level of individual employees, which facilitates targeted service training as part of supervisory work.

During the past year, we have identified negative impacts on the customer experience from e.g. amendments to the billing process,

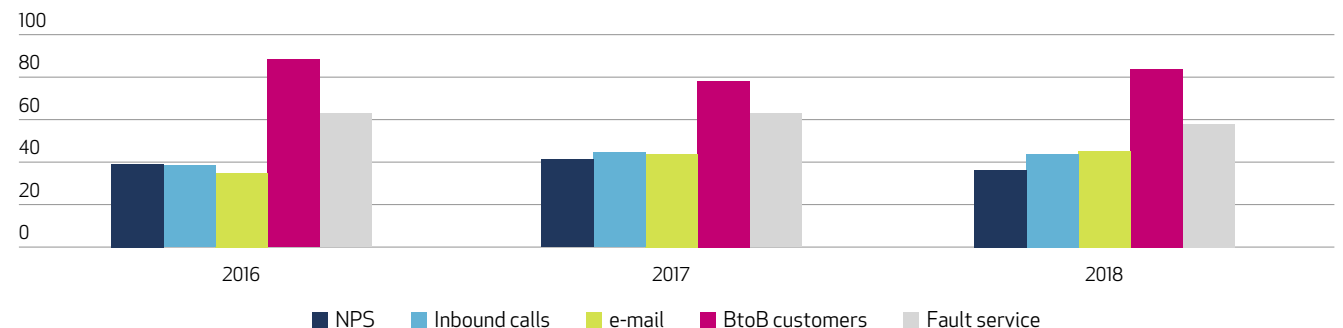
#### ENERGY BY CUSTOMER SEGMENT



prolonged congestion situations in customer service due to power outages caused by weather phenomena, as well as seasonal phenomena, such as the end of the winter restriction period of the debt collection process.

In the development of the customer experience, we will focus on being able to react to the results of customer experience measurements in an even more agile way and utilise the results in personnel training in the near future.

### NET PROMOTER SCORE (NPS) 2016–2018, %





### INCREASING NEED FOR DIGITAL SERVICE

Alongside conventional service channels, such as e-mail, chat service and online forms, our customers have access to the Elenia Aina service that provides customers with electricity consumption data, invoice history and other customer account-related data in digital format. Elenia Aina is also a service channel for customers in matters pertaining to their Elenia customer account. With the Elenia Aina smartphone app, customers can report electricity network faults and attach a photo of the fault point and its location to the report.

We have developed the service by including additional customer account information in it, as well as new content, e.g. a service for comparing electricity suppliers' prices based on the customer's own electricity consumption. Approximately 67,000 Elenia customers have registered with the Elenia Aina service. The use of the service is at its busiest during the heating season between September and March.

In spite of the high number of registered customers, the use rate of the service has decreased. This indicates the need for continuously reforming digital services.

### DEVELOPMENT STEPS TOWARDS MORE SERVICE-ORIENTED CONSTRUCTION OF A WEATHERPROOF NETWORK

We renewed Elenia's complaints process connected to network construction during 2018 and made statistics more systematic. At the beginning of 2019, we deployed a new system solution that has made the numbers and causes of complaints more transparent and their processing smoother together with partners. The majority of complaints concerning Weatherproof projects deal with the way in which the after-work of building the underground cable network is managed or its schedule. We consider this customer experience to be the most significant area to improve on.

In 2018, a significant share of complaints concerned construction in private road areas and landowners' yard areas. Our particular targets for development include the quality of work outcomes and their correspondence with landowners' expectations and interaction with the landowners throughout the construction project. We will develop the flow of information and service channels by e.g. requesting feedback in different project phases and reviewing negative feedback and complaints swiftly together with our partners.

## CUSTOMER SATISFACTION WITH THE BUILDING OF ELENIA WEATHERPROOF BY SMS

In 2018, we developed a method for combining the customer's informational services with satisfaction measurement. We adopted SMS communications in conjunction with the project to build a weatherproof electricity network and combined a satisfaction survey with it. Landowners are informed by SMS when the terrain planning of the project is complete and the agreements are ready. At the same

time, they can give feedback on the terrain planning of the project. Another SMS message is sent to customers in the area impacted by the electricity network construction project once they have been connected to the renewed network. At the same time, the customer can give feedback on the progress of the construction work.



#### MONITOR YOUR CONSUMPTION

See how much electricity is consumed, even hour by hour.

#### MONITOR YOUR CONSUMPTION

Keep an eye on electricity consumption, even hour by hour.

#### INVOICES SORTED

Monitor your invoices.

#### FAULT NOTIFICATION

Submit a fault notification or send a photo of a potential hazard.

#### IS MY ELECTRICITY ON?

Check whether the electricity is on at your home or cottage.





## Safe operation in the vicinity of the electricity network

### KAIKU PROJECT – RENEWING THE PROCESSING OF COMPLAINTS

At the beginning of 2018, we began to accelerate Elenia's network construction-related complaints process by omitting processing phases that do not provide the customer with added value. At the same time, we launched a system development project that resulted in Elenia's customer service deploying, in early 2019, a system solution that makes complaint management easier. With this, complaint volumes and their processing times will be our key indicators in the future, strengthening continuous improvement for the benefit of customers. Aiming for a smoother tying up of loose ends and smoother flow of information to the customer.

The safety of the electricity network and safe operation in its vicinity is our common cause and an essential part of our operations. We build and maintain our electricity network so that it does not cause danger to our customers or the rest of the society. We take environmental impacts into consideration in our operations.

At sites where we are building the electricity network, our partners comply with all of the safety regulations of the industry and, in particular, we ensure that the network construction sites are also safe for customers and other parties. We are responsible for the work areas being appropriately fenced off, for traffic management and for pedestrian and bicycle ways being in order and excavations being made safely.

Storms, thunder, snow loads or small animals can cause power outages. Thanks to electricity network technology and 24-hour monitoring, we are quickly informed of extensive incidents, and our customers can see them on our outage map. Our website features instructions for customers and stakeholders on how to prepare for a power outage and act during it.

We are informed of individual incidents directly by electricity network automation devices and energy meters or our customers contacting us due to a power outage. We immediately commence troubleshooting and restoration of power. We restore power as quickly as possible, and absolutely comply with all required electrical safety regulations. Our power outage service is available 24/7/365 by telephone and through electronic channels. If there are several defects, we take the impacts relating to safety and society in the electricity restoration order.

A weatherproof electricity network reduces the power outages caused by storms, thunderstorms and snow loads. At the same time, the proportional share of other network incidents increases. We guide our customers and third parties on safe operation in the vicinity of the electricity network, regardless of whether the network comprises overhead lines or underground cables. Faults critical to safety, such as zero faults, are prioritized for repair. In case of extensive power

outages, we warn the customers about the safety risks of the fault site and remind them that all electricity network repairs and removal of trees from the electricity network must always be carried out by professional electricians.

When excavations are carried out in the vicinity of the underground cable network, we make sure that electrical safety is practiced. We provide location information about cable routes and mark the





location in the field, if necessary. When excavation work is required in the immediate vicinity of an underground cable, we make sure that the cable is not live, to guarantee the safety of the work. When a customer or landowner wants to fell trees in the vicinity of the overhead line network, we provide tree felling assistance to ensure the electrical safety of the felling.

#### ELECTRICITY NETWORK DAMAGE AND ITS CAUSES

All damage to the electricity network causes safety risks, such as the risk of an electrical accident to employees and other people who are not employees of Elenia. Damage to the network in an urban area can cause a power outage to hundreds, even thousands of customers.

Already one-fourth of power outages during a year with calm weather is caused by damage; on average, there are three outages per day, and their number is increasing. Damage causes costs and harm to those causing the damage, customers, Elenia and contractors.

We influence the entire operating environment of Elenia, our partners, our customers and others working in the vicinity of the electricity network so that all damages to the electricity network caused by humans and any related harm can be prevented. Elenia is always willing to provide assistance and instructions for safe operations in the vicinity of the electricity network.

**ALL NETWORK  
DAMAGES  
CAUSED BY HUMANS  
CAN BE  
PREVENTED**

## Damage inflicted on the electricity network annually

**UNDERGROUND  
CABLE**

400

**OVERHEAD  
LINE**

500

**OTHER  
DAMAGE\***

300

\*e.g. link boxes,  
transformer sub-  
stations, etc.

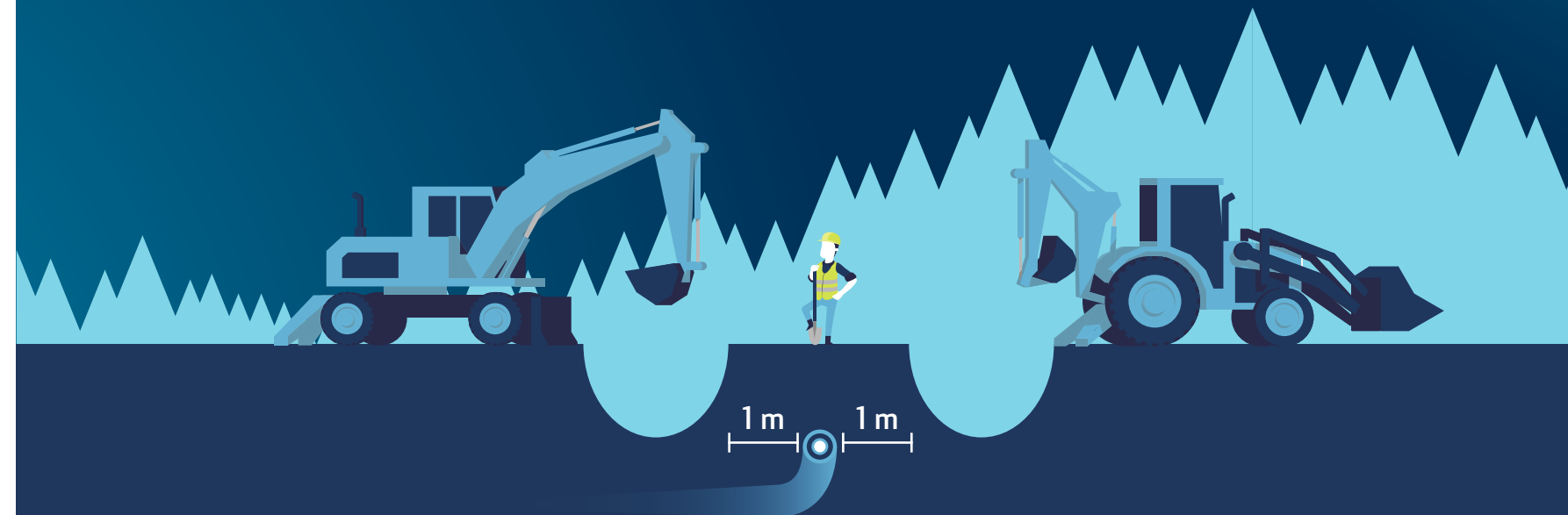
**CAUSES OF DAMAGE IN THE  
UNDERGROUND CABLE NETWORK**

- Earthworks of various kinds, including road, telecommunication, water supply and sewerage projects

**CAUSES OF DAMAGE IN THE  
OVERHEAD LINE NETWORK**

- Trees felled onto the lines
- Damage caused by large machinery
- Lines hit by high transported loads

## Safety distances of weatherproof cable







## Network investments for future needs

Elenia has been working with determination in recent years to improve the security of supply of its electricity distribution network in accordance with the electricity distribution development plan. We have committed to the quality requirements stipulated by the Electricity Market Act, according to which by 2028, outages may not last more than six hours in zoned areas and more than 36 hours in other areas. Based on this, our electricity network's underground cabling rate will increase to 75% by 2028.

At the end of 2015, 62% of our customers were within the scope of the quality requirements stipulated by the Electricity Market Act by 2028.

We have been carrying out this work for a decade, since 2009, when we took the decision to rebuild and renovate all networks to be weatherproof as underground cables. Over a decade, we have invested more than a billion euros in the security of electricity distribution. It has involved more than 10,000 person-years of work.

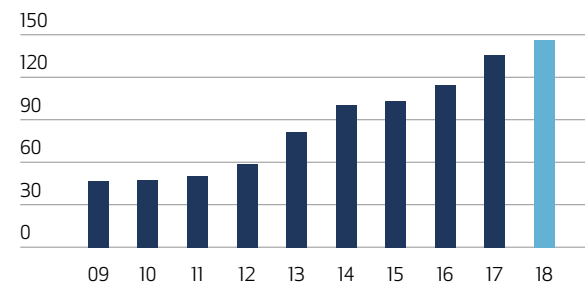
In addition to excellent security of supply, underground cabling is also the most sustainable solution in terms of safety and environmental aspects to replace the ageing overhead line network to meet the needs of the increasingly rapidly digitising society far into the future.

**In one decade, over a billion euros and 10 000 person-years invested in the security of electricity distribution.**

In 2018, Elenia invested a total of EUR 146.4 million in the construction and development of its electricity network. We built 3,578 km of new underground cable network, of which 1,665 km was medium-voltage underground cable network and 1,913 km was low-voltage underground cable network. A total of 1,678 new kiosk-style secondary substations were built, replacing old pole-mounted transformers. Approximately one in four of these new kiosk-style secondary substations are equipped with remote-controlled switching equipment. In 2018, we significantly revised our data traffic system, facilitating increasingly efficient and secure electricity network management.

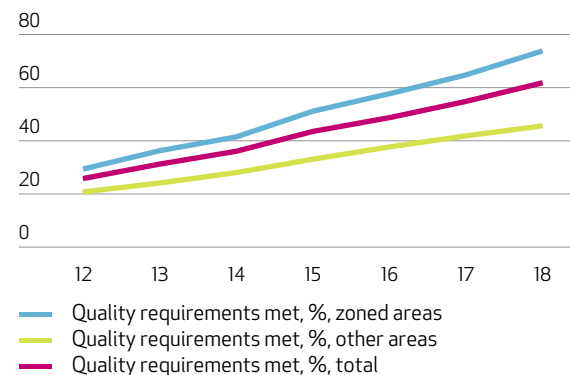
### INVESTMENTS IN THE SUPPLY OF SECURITY

ELENIA OY'S TOTAL INVESTMENTS IN ITS  
ELECTRICITY NETWORK 2009–2018, EUR MILLION\*



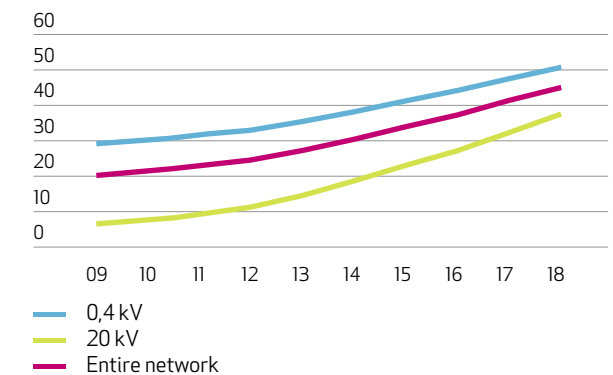
\* excludes ICT system investments and the street lighting network

ELENIA OY'S CUSTOMERS COVERED  
BY THE QUALITY REQUIREMENTS 2012–2018, %



Pursuant to the Electricity Market Act, quality requirements will apply to 50% of customers by the end of 2019, 75% of customers by the end of 2023 and 100% of customers by the end of 2028.

ELENIA OY'S  
UNDERGROUND CABLING RATE 2009–2018, %





Similarly to 2017, 2018 was calm in terms of weather phenomena. There were no significant major power disruptions during the year, and the SAIDI (System Average Interruption Duration Index) indicator remained at 95 minutes, which is excellent for a rural company. The SAIFI (System Average Interruption Frequency Index) indicator was also at a good level, 3.5 per year.

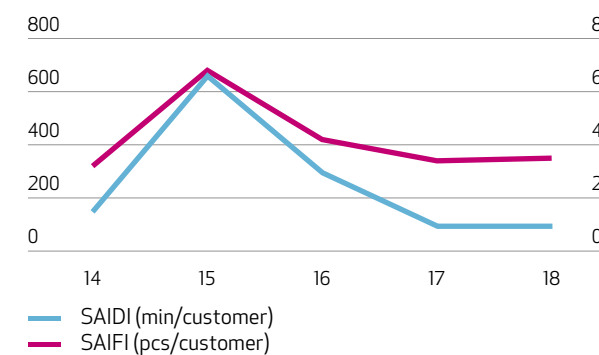
#### CUSTOMER'S DATA PROTECTION IS UP TO DATE

Elenia respects the privacy of its customers and processes personal data appropriately. It is Elenia's duty to guarantee the confidentiality and safety of customers' personal data. Elenia prepared for the implementation of the EU's General Data Protection Regula-

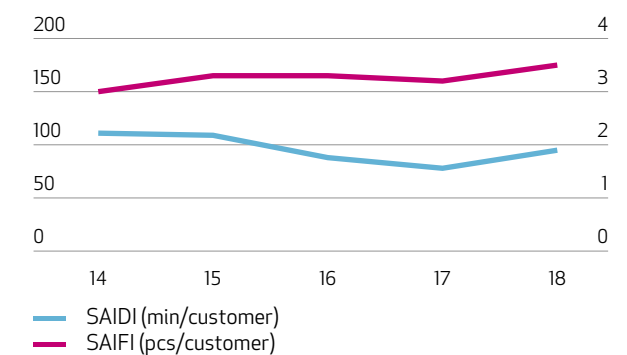
tion (GDPR) by auditing the implementation of data protection in cooperation with an external consultant, training its personnel and establishing a group-wide data protection team to guide the appropriate operating methods and the development of IT systems.

#### DEVELOPMENT OF OUTAGE PERFORMANCE INDEXES 2014-2018

##### ALL OUTAGES



##### WITHOUT MAJOR DISTURBANCES







## BUSINESS CONTINUITY AND BEING A FORERUNNER

We ensure the reliability of electricity  
network services under all conditions.



We promote the development of a  
sustainable society and way of life.





Requirements stipulated by the electricity market act concerning the reliability of electricity distribution.

**POWER OUTAGES CAUSED BY STORMS OR SNOW LOADS SHALL NOT EXCEED 6 HOURS IN ZONED AREAS AND 36 HOURS IN OTHER AREAS, AS FOLLOWS**



**OF CUSTOMERS  
BY THE END OF 2019**  
50%



**OF CUSTOMERS  
BY THE END OF 2023**  
75%



**OF CUSTOMERS  
BY THE END OF 2028**  
100%





GUIDANCE OF THE ELECTRICITY MARKET ACT  
AND SECURITY OF SUPPLY

The Electricity Market Act was amended in 2013 to significantly increase the security of supply of Finland's electricity networks over a transition period of 15 years, by the end of 2028, see [page 34](#). In practice, this means modernising the aged network systems with network and automation solutions that will better serve the current and future society.

The Energy Authority supervises the realisation of the objectives of the Electricity Market Act by way of a development plan submitted to it once every two years. In addition, the regulation methods encourage electricity network companies to improve the security of supply of electricity networks in line with the targets stipulated by the Electricity Market Act, and they guide electricity network companies to seek efficient and smart solutions that enable the creation of an electricity marketplace.

The fourth regulatory period of the electricity network business will expire at the end of the year. The regulation methods applied are the same for the fourth regulatory period, 2016–2019, and the fifth regulatory period, 2020–2023. The regulation methods ensure continuity in relation to the methods applied in previous regulatory periods and reinforce Elenia's view of secure electricity distribution being essential for customers and society.

Since 2009, Elenia has worked on improving the security of supply of the electricity network by replacing the ageing overhead line network with weatherproof underground cabling and introducing new automation technology to the electricity network. We are committed to achieving the security of supply targets specified by the Electricity Market Act on schedule, by the end of 2028, to benefit our customers and society at large.

Furthermore, we continuously develop and test new network technologies to seek increasingly cost-efficient solutions for diverse electricity distribution environments. A good example of this is the energy storage installed in Northern Pirkanmaa in early 2019, capable of securing power supply to almost a hundred customers in case of electricity network faults.

Security of supply



UNDERGROUND CABLING RATE  
OF THE NETWORK AS A WHOLE  
45.1%



UNDERGROUND CABLING RATE OF  
THE MEDIUM-VOLTAGE NETWORK  
37.6%



UNDERGROUND CABLING RATE OF  
THE LOW-VOLTAGE NETWORK  
50.8%

NETWORK INVESTMENTS IN 2018

146.4 M€

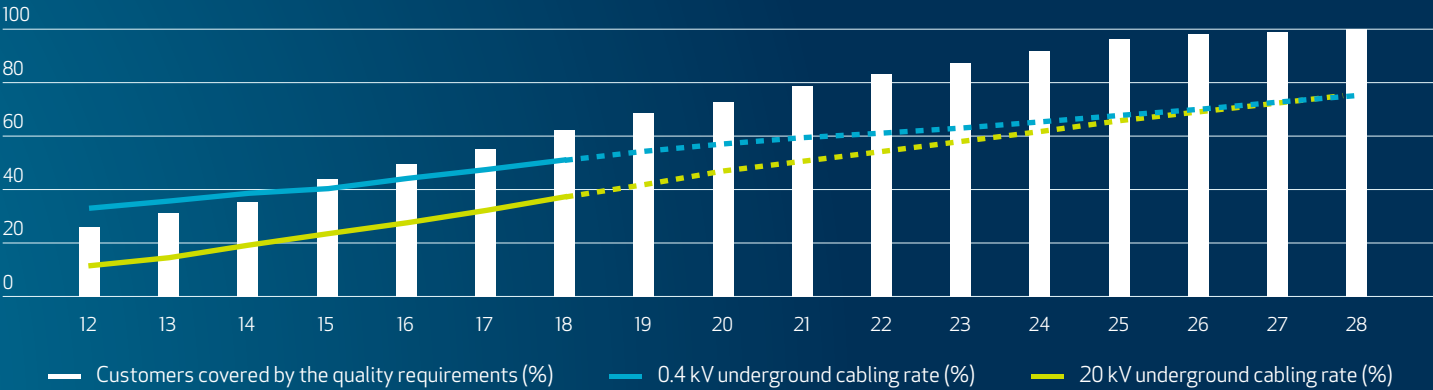
NEW UNDERGROUND  
CABLE NETWORK  
3,578 km

20 KV MEDIUM-VOLTAGE  
NETWORK  
1,665 km

0,4 KV LOW-VOLTAGE  
NETWORK  
1,913 km

NEW SECONDARY  
SUBSTATIONS  
1,678 pcs

DEVELOPMENT PLAN 2012–2028, %





## Elenia Weatherproof secures the smoothness of an increasingly digital day-to-day life

Finland's electricity network was mainly built in the 1950s–1970s using overhead line technology, suitable for the needs of the era, which offered an affordable way of electrifying the entire country. The long-serving overhead line network is approaching the end of its life cycle. At the same time, extreme weather phenomena are becoming more commonplace. A network built using overhead line technology is sensitive to extreme weather phenomena. For example, at the turn of the year 2018/2019, Storm Aapeli left more than 100,000 Finnish households without electricity when storm winds felled trees onto power lines. The increasingly digital society is extremely dependent on electricity distribution, and power outages cause great harm to the fluidity of people's day-to-day lives and the functioning of the society.

We recognised the challenges of the ageing and fault-susceptible overhead line network already at the beginning of the 2000s. During 2006–2008, we cooperated with universities, equipment

Underground  
cabling is an  
environmentally  
friendly  
solution.

manufacturers and contractors to find the optimum solution for replacing the ageing electricity network with modern technology. The solution found in the research cooperation was weatherproofing the electricity network through underground cabling which we will promote in the form of Elenia Weatherproof construction projects.

Elenia Weatherproof is a cost-efficient underground cable network developed for less densely populated areas, utilising modern network automation. The investment cost of an underground cable network is higher than that of an overhead line network, however, when considering maintenance costs and costs caused by power outages throughout the service life, an underground cable is not more expensive than an overhead line. The majority of the maintenance costs of an overhead line network are caused by costs of rectifying extensive power outages and by the clearing of trees, which is necessary at regular intervals.

Elenia Weatherproof is also an environmentally-friendly solution. Underground cabling of the electricity network frees up considerable amounts of forest and field area for forestry and agricultural use. In conjunction with underground cabling, old pole-mounted transformers are replaced with new kiosk-style secondary substations with leak basins to prevent oil accidents. We continuously develop the Elenia Weatherproof solutions in cooperation with equipment manufacturers and our contractor partners,

# 72,000 km

Elenia has 72,000 kilometres of electricity network – 1.5 times around the world – in Häme, Pirkanmaa, Central Finland, and South and North Ostrobothnia. 45% of the network is underground cabled.



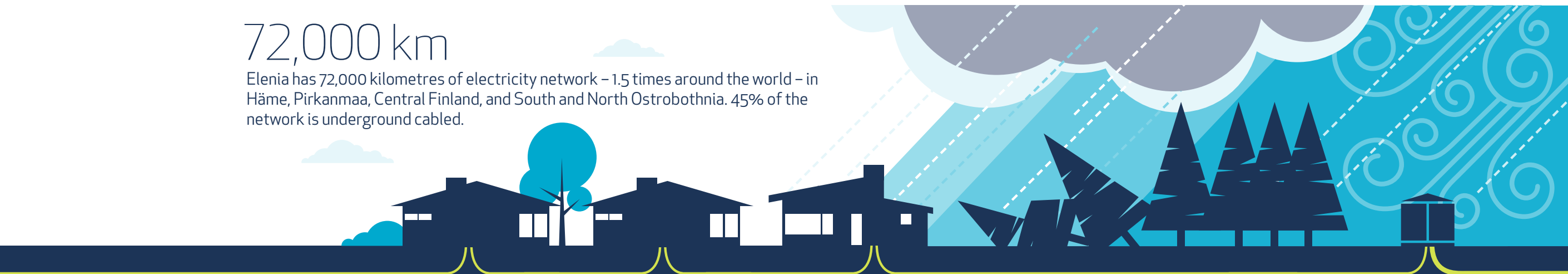
**ELENIA  
WEATHERPROOF**

# 3,000 km

We construct 3,000 km of underground cables per year.

# 75%

Our goal is to increase the proportion of underground cabling in our distribution network to 75% by 2028. At the same time, we'll bring work to the regions.







and the continuous development of the manufacturing materials of network components to be more durable is a good example of this.

Since 2009, we have been building all of the new and replacement areas of the network using underground cables. We annually build more than 3,000 km of Elenia Weatherproof underground cable network. Our electricity network's underground cabling rate will increase to 75% by 2028.

#### **ELECTRICITY NETWORK MAINTENANCE MANAGEMENT IN CHANGE**

With efficient maintenance management in cooperation with its extensive partner network, Elenia proactively ensures the safety and functionality of the electricity networks. Our maintenance programme sets out our entire electricity network's inspection, clearance and maintenance activities.

We carry out inspections on the electricity network all year round. Our substations are inspected four times per year and we maintain substation equipment regularly in accordance with our maintenance programme. In 2018, we inspected low-voltage networks in the field over a distance of 2200 kilometres along with 7800 underground cable network sites. Helicopter inspections of the electricity network are performed in the summer. We carry out photography and laser scanning of the high-voltage distribution network in its entirety at intervals of four years and a quarter of our medium-voltage network each year.

We responsibly see to the safety of special sites; for example, we inspect 1,500 transformer substations located in groundwater areas each year. Regular inspections enable us to allocate maintenance activities in a timely manner in different sections of the electricity network. This ensures the efficient and high-quality maintenance of our network.

#### **DIGITISATION CHANGES THE MAINTENANCE MANAGEMENT OF THE ELECTRICITY NETWORK**

With regard to the underground electricity network, we are a forerunner in developing maintenance management methods. We have specified the future guidelines for managing the life cycle of the underground cable network and measurements required for the systematic monitoring of the condition of underground cables.

We investigate the utilisation of new technologies, such as data analytics, machine learning and Internet of Things sensors, in developing the maintenance management of network assets. Our aim is to

## **GREETINGS FROM A HOUSE ALONG THE ELENIA WEATHERPROOF NETWORK IN RAUDANMAA, KANGASALA**

Our home is located in a sparsely populated area approximately 17 kilometres from the centre of Kangasala. Before the underground cabling of the electricity network, we had frequent power outages regardless of the time of year. Some were due to weather conditions, while others were caused by animals such as cranes and swans. The outages and power going on and off repeatedly was particularly bad for household appliances, such as our refrigerator. We have only had a few outages since the introduction of underground cabling, and they have mostly been limited to a few seconds or minutes. Perhaps the overhead line network further away still has some effect on our house too.

From our perspective, the underground cabling project mostly just involved paperwork. The construction itself went well for the most part, although communication could have been better. For example, we would have liked to know when they needed access to our land, and getting in touch with the supervisors was not always easy. Problems that arose during the construction phase, such as fixing broken subsurface drains, could have been dealt with faster.

In spite of those issues, the underground cabling of the electricity network has improved our perception of Elenia. This may be a rural area, but Kangasala is a decent-sized city near Tampere. That creates additional requirements concerning the reliability of electricity distribution. There are farms in the area, and the uninterrupted supply of electricity is essential for business, even where reserve power systems are available. Even in rural areas, everything is just as digital these days as it is in the cities, and the reliability of electricity is part of smooth daily life. The renewal and weatherproofing of the electricity network is a basic service.

**Heidi Lehtiniemi-Eerola, Sakari Eerola  
and their children Siiri and Urho**





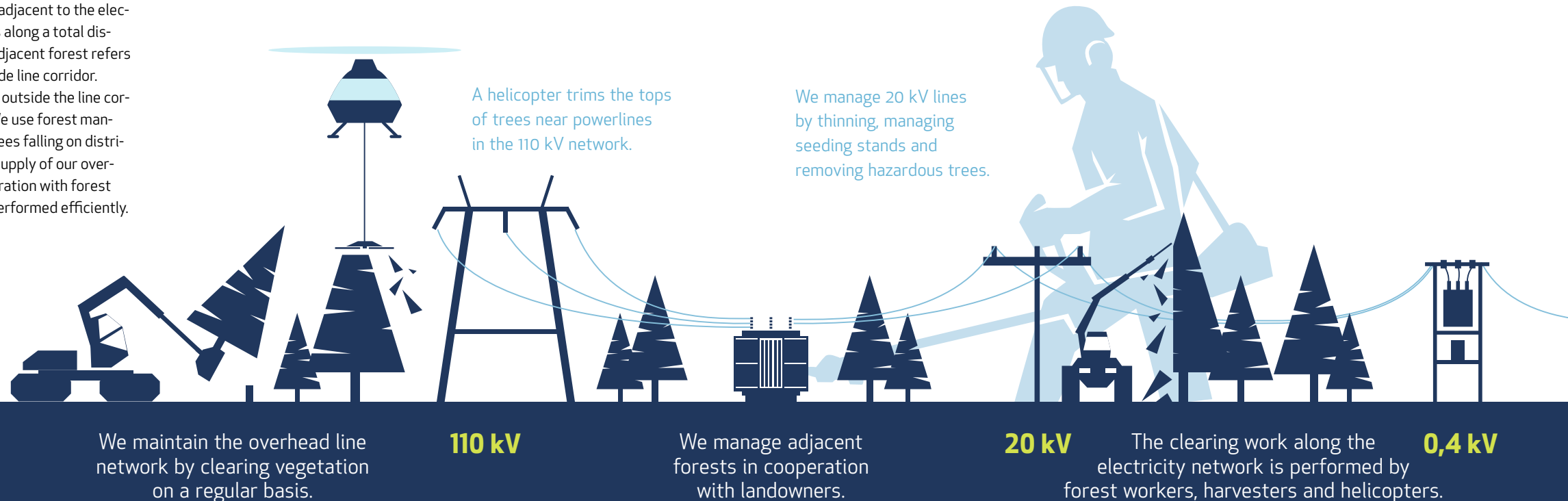
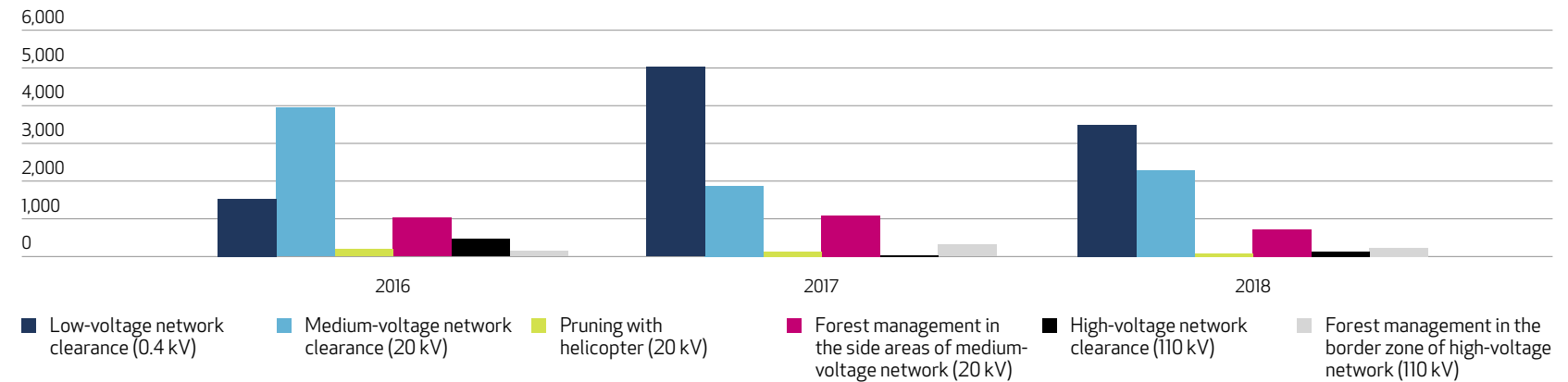
enhance the safety and operational reliability of the network by targeting maintenance measures correctly and preventing faults.

#### TREE MANAGEMENT PROVIDES RELIABILITY FOR THE OVERHEAD LINE NETWORK

Each year, we manage tree stands along approximately 5,000 kilometres of line corridors in order to ensure the security of electricity distribution in our overhead lines. We carry out systematic clearance on the high-voltage distribution network at intervals of approximately six years and we keep it clear of trees by felling adjacent trees and trimming the tops of trees. Clearance work on the medium-voltage network is carried out on a needs-driven basis at intervals of 4–5 years either in the field, using multi-function machinery, or from helicopters. In the low-voltage network, clearance work is carried out at intervals of eight years. In managing trees, we utilise aerial imagery and clearing analyses based on laser-scanned data.

In recent years, Elenia has managed forests adjacent to the electricity network in cooperation with our partners along a total distance of about 1,000 kilometres each year. An adjacent forest refers to trees outside the approximately 10 metre-wide line corridor. Storms or heavy snow loads may result in trees outside the line corridors falling or bending onto the power lines. We use forest management to reduce power outages caused by trees falling on distribution lines, thereby improving the security of supply of our overhead line network. Good and responsible cooperation with forest owners and partners ensures that the work is performed efficiently.

TREE MANAGEMENT 2016–2018, KM







## QUALITY ASSURANCE AND CUSTOMER COMMUNICATIONS IN TREE MANAGEMENT

At the beginning of 2017, we centralised all tree management and maintenance work in a new three-person team responsible for ordering and supervising tree management contracts. This way have been able to better monitor and develop the quality of work, adherence to schedules, communications and customer satisfaction.

At the same time, we adopted a tree management work quality assessment form for measuring the quality of contractors' work in the field. During 2017 and 2018, we carried out 962 quality inspections of diverse tree management tasks. This year, we will focus on how we communicate the results of the quality assessments to the contractors and how the results will influence the tendering of future contracts.

As of 2016, we have invested in the management of adjacent forests in order to improve the security of supply of electricity distribution in areas where underground cabling is not yet topical. We are developing our operating methods as we accumulate experience. We make satisfaction surveys among landowners involved in the management of adjacent forests. This year, we will additionally conduct two surveys to investigate the effectiveness of the management of adjacent forests in snow load situations.

We have communicated about the management of adjacent forests also extensively in the media, social media and our website in addition to bulletins to landowners. Communication about other tree management work has depended on the clearance map on the website and newspaper advertisements. This year, we will pilot SMS communications about clearance work in the low-voltage network. The aim is to also use SMS communications in all other tree management.





## Efficient operation and good informational services are emphasised in power outages

As part of customer service and systematic network asset management, it is our task to recover electricity distribution to customers as quickly as possible and serve them with outage-related information. This is particularly emphasised in extreme phenomena, when the situation can change into a major power disruption.

Elenia works with determination in preparing for extreme weather phenomena. We maintain up-to-date contingency planning, major power disruption organisation and resources together with our fault repair partners.

Our network control centre is in operation every hour of every day 365 days of the year and is ready to act in case of the threat of a major power disruption caused by oncoming weather. We utilise the automation and remote control equipment of our electricity network, with which electricity supply can be returned to the majority of customers through re-switching the network and isolating the fault area. Over the last 10 years, we have quadrupled the number of such remote control equipment. With our extensive partner network, we can swiftly take care of the numerous faults of even extensive, major power disruptions and recovering electricity distribution.

As only company in Finland, Elenia pays voluntary refund for outages over 6 hours.

We serve our customers with information about power outages through the channel of the customer's choice, ranging from SMS to personal telephone service. Our customers use our transparent electronic services effectively, and only about 1% of our customers who have experienced a power outage call our fault reporting telephone service. At the same time, more than one-half of our customers use our personal SMS and e-mail services.

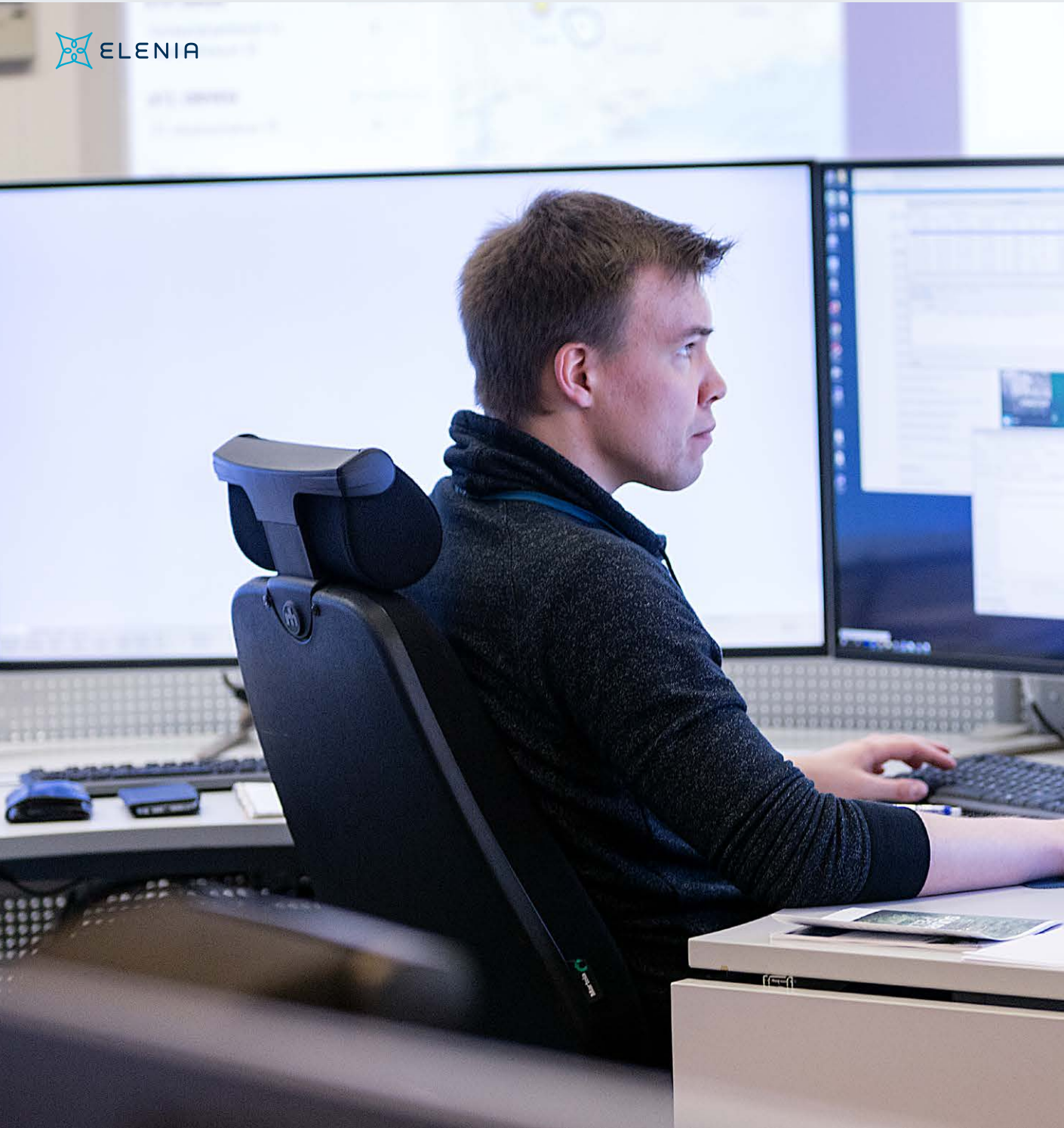
If the power outage nevertheless lasts longer than six hours, we are the only company to refund the customer for it. We have served our customers like this for almost a decade. We automatically pay this voluntary refund and statutory standard compensation for power outages lasting longer than 12 hours without the customer needing to contact us.

In addition to our in-house development work, Elenia's contingency planning is guided by statutory requirements, the views of the Energy Authority and the Security Strategy for Society. We will submit our contingency planning to the authorities for assessment the next time in summer 2019. Elenia exerts influence in key forums on the contingency planning of energy supply in its network area, such as the national energy supply pool and the regional security of supply cooperation groups of businesses.

We cooperate with other companies critical to the security of supply, authorities and companies taking care of the State's special tasks in preparing the national situation picture and maintaining the operational reliability of telecommunications connections.







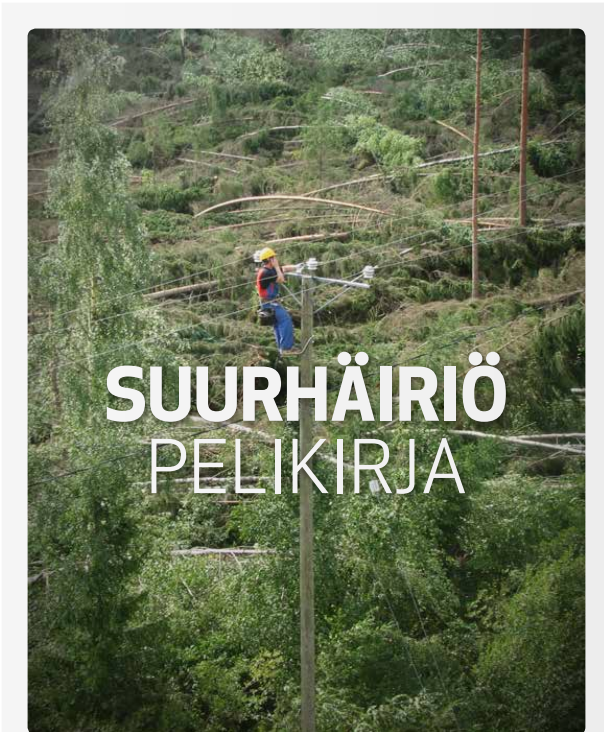
## MAJOR POWER DISRUPTION MANUAL – TRIMMED SERVICE IN POWER OUTAGES

A good example of the development of our preparations is the major power disruption manual published for Elenia and our partners in the spring of 2018, sharpening our contingency and operating principles for coping with storms, thunderstorms and snow loads.

The majority of Elenia's personnel and hundreds of electricians and supervisors of fault repair partners take part in rectifying Elenia's major power disruptions.

Each major power disruption is a situation in its own right, and therefore we identified the need for describing vigorous operating guidelines and rules for diverse situations. A snow load situation, for example, requires different operating practices from a low-pressure storm. It is important for everyone participating in handling the situation to know exactly how to manage a major power disruption and where control measures and changes in responsibilities take place. It is a key task of the manual to deepen the cooperation practices. Communications and management play a key role in exceptional situations.

With a concise manual, everyone participating in major power disruptions is aware of the key contingency needs and procedures, including control measures, during the situation. Our experience with the major power disruption manual is very positive, including in conjunction with the autumn 2018 storms and Storm Aapeli in 2019, as well as snow loads.





## Management system and information security for Cyber security

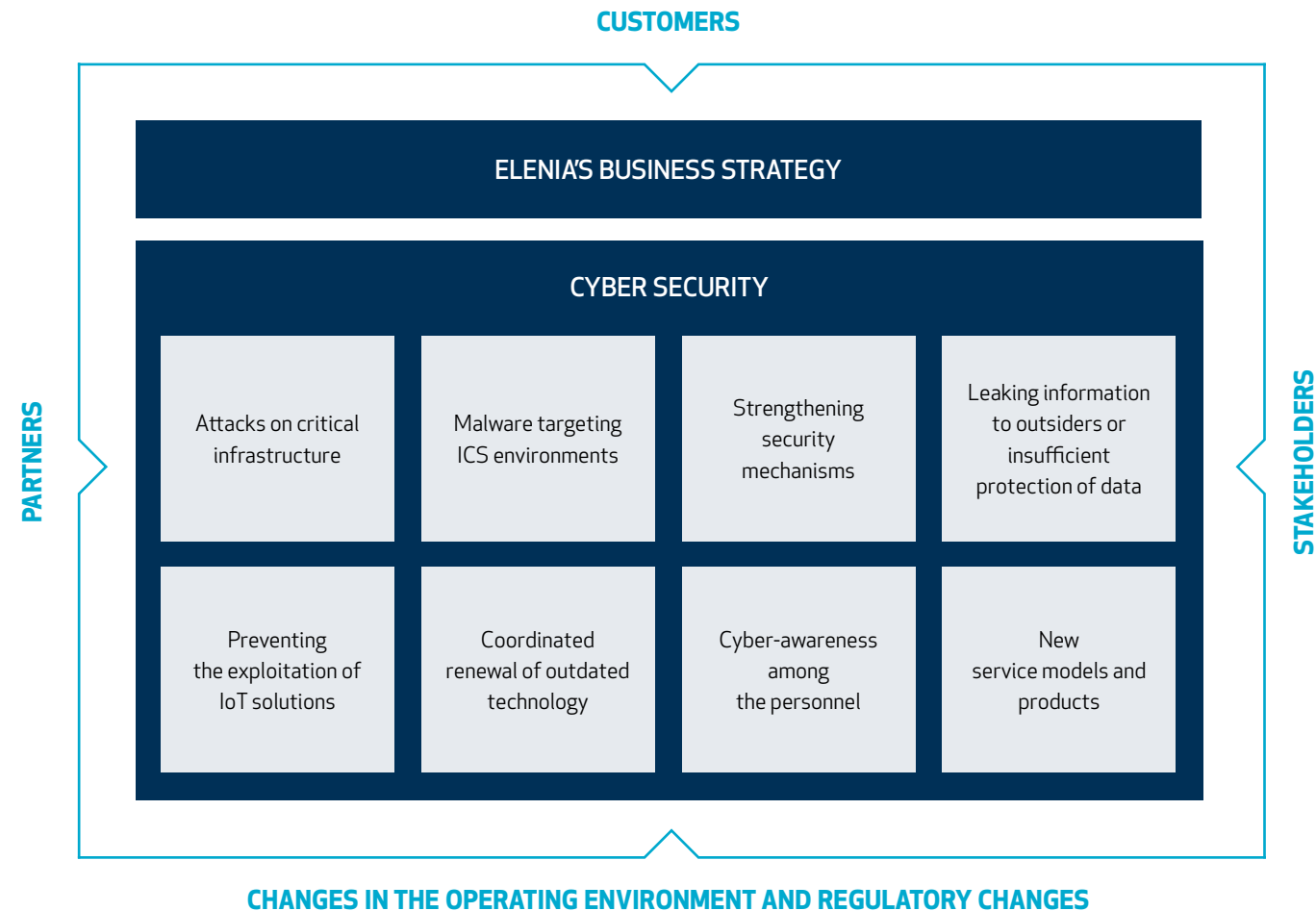
Elenia's position as a key actor from the society's point of view places significant requirements for ensuring the company's cyber security. We must be able to guarantee the functioning of the distribution of electricity, both under normal conditions and in severe incidents and emergency situations. Our operations are largely built on partnerships, and this is also taken into account in our cyber strategy. Taking care of cyber security is part of our corporate culture and practical operating methods in such a way that cyber risks are acknowledged and taken into account in everything we do.

Elenia conducted an analysis of the current state of cyber security in 2017, and a change plan and supplementary roadmap for 2018–2020 were drafted based on this analysis. Work to build an information security system pursuant to the ISO27001 framework began based on the observations made in the analysis of the current state in 2018.

Cyber security is the joint responsibility of the management, supervisors and employees. Each business and each Elenia employee is responsible for the realisation of information security in their respective area of responsibility. Seeing to Elenia's cyber security is not limited exclusively to an intra-group function; various partners, stakeholders and authorities play a significant role in it. Elenia's values are complied with in cooperation with other parties.

The objective of the information security management system is to develop and maintain the information security of people, information systems and processes included in the business operations of the area of application. Elenia's information security management system covers the group's network and service businesses. Our management system project started in 2018, and it will be completed during 2019.

The management system provides good visibility to the cyber safety risks of our assets and the development of cyber safety, both in our in-house operations and cooperation with our partners.



### THE TIETO2018 CYBER SECURITY EXERCISE

We regularly have drill rehearsals in case of incidents. In addition, we actively network with various authorities and businesses to develop national cyber security. In 2018, for example, we took part in the nationwide Tieto2018 cyber security rehearsal. The aim of the rehearsal was to improve the society's ability to prevent and survive major cyber security incidents. The rehearsal was particularly aimed at companies critical to the security of supply, and representatives of businesses and authorities from dozens of organisations took part in it. The areas of business involved included the energy sector logistics and traffic, manufacturing industry, healthcare sector, water supply and the media sector, as well as the industries' key ICT service providers. In addition, the authorities responsible for these industries and the National Emergency Supply Agency, the Finnish Transport and Communications Agency's National Cyber Security Centre Finland and the Finnish Defence Forces took part in the rehearsal.

The Tieto2018 exercise was a scenario-based strategic-level rehearsal organised in three parts.





## Strict requirements for partnerships and procurement

Elenia's cooperation network includes large, small- and medium-sized enterprises. Partnerships support the efficiency of our operations and provide an opportunity to develop the operations of partner companies of different sizes in the long term. Our starting point in specifying the agreements is in profitable business and the operational prerequisites of an SME: We encourage new service providers to join the activities and actively develop the service market.

The proportion of large companies has increased in Elenia's contracting service partnerships. This is due to mergers and acquisitions made in the service market. During the three-year period under review, Infratek Finland Oy acquired all of the shares in the Oulu-based electricity distribution maintenance and construction company Pohjolan Werkonrakennus Oy, for example. During 2019, Voiman Oy will merge with TLT-Connection Oy. Pohjolan Werkonrakennus Oy and Voiman Oy have grown from small companies into significant contractors over the last 10 years, mainly based on their partnership with Elenia.

Elenia purchases contracting services from approximately 20 micro-enterprises each year. Such procurement accounts for approximately 2–3% of the annual procurement volume of contracting services. In addition, Elenia's electricity network projects provide employment to several local micro-enterprises and SMEs as subcontractors of partners in earthworks of the underground cable network, for example.

### PROCUREMENT FROM CERTIFIED PARTNERS

Responsibility and being environmentally friendly play a key role in Elenia's procurement of electricity and fibre-optic network materials. All of our strategic procurement partners, see graph, are ISO 14001-certified, which is an absolute requirement in Elenia's strategic material procurement. The suppliers are also audited before the commencement of deliveries. The audit involves reviewing the ISO 14001 certificate, among other things. In addition, suppliers are required to be ISO 9001-certified and compliant with OHSAS/ISO 18001 as a minimum requirement.

### YEAR 2016



■ small enterprises.....	27%
■ medium-sized enterprises .....	37%
■ large companies.....	36%

There were seven SMEs among the ten largest providers of contracting services, three of them small enterprises. There were 20 micro-enterprises, accounting for 1.9% of the annual procurement of contracting services.

### YEAR 2017



■ small enterprises.....	28%
■ medium-sized enterprises .....	35%
■ large companies.....	37%

There were six SMEs among the ten largest providers of contracting services, three of them small enterprises. There were 19 micro-enterprises, accounting for 1.9% of the annual procurement of contracting services.

### YEAR 2018



■ small enterprises.....	26%
■ medium-sized enterprises .....	23%
■ large companies.....	51%

There were five SMEs among the ten largest providers of contracting services, two of them small enterprises. There were 16 micro-enterprises, accounting for 2.7% of the annual procurement of contracting services.

### DEFINITION: STATISTICS FINLAND AND EU DIRECTIVE

**Medium-sized enterprises:** under 250 employees, maximum annual revenue €50 million or maximum balance sheet total €43 million

**Small enterprises:** under 50 employees, maximum annual revenue or balance sheet total €10 million

**Micro-enterprises:** under 10 employees, maximum annual revenue or balance sheet total €2 million



The majority of our materials is manufactured in neighbouring regions in Europe. During 2018, approximately 50% of the total value of materials was manufactured within 500 kilometres of Elenia's network area, and 95% of the total value of materials was manufactured in Europe. The procured materials mainly include various metal fractions, plastic and oil, which are highly recyclable. Elenia's transformer substations contain SF6 gas, which is a hazardous gas in terms of climate change. However, its electrotechnical properties are currently highly superior to the other options, and SF6 gas is fully recyclable and recovered from components dismantled from the network.

We have also increased social responsibility in Elenia's procurement of materials. In the future, we will score the manufacturer's LTIF rate and responsibility reporting as a quality factor in all procurement. In Elenia's procurement, the weight of quality and social factors ranges between 10% and 50%, depending on the total value of the procurement, object and objectives.

> [Elenia's procurement policy](#)

#### WHOLESALE AND LOGISTICS

SLO Oy, Finland

#### MEDIUM VOLTAGE CABLE

Prysmian Group Finland Oy, Finland  
Klinkmann Oy - Hellenic Cables SA, Greece

#### LOW VOLTAGE CABLE

Tele-Fonika, Poland

#### COMPACT SECONDARY SUBSTATION

ABB Oy, Estonia  
KL-Industri AB, Sweden  
Satmatic Oy - Harju Elekter, Estonia

#### DISTRIBUTION CABINETS

Onninen Oy - Emmiter, Poland

#### DISTRIBUTION TRANSFORMERS

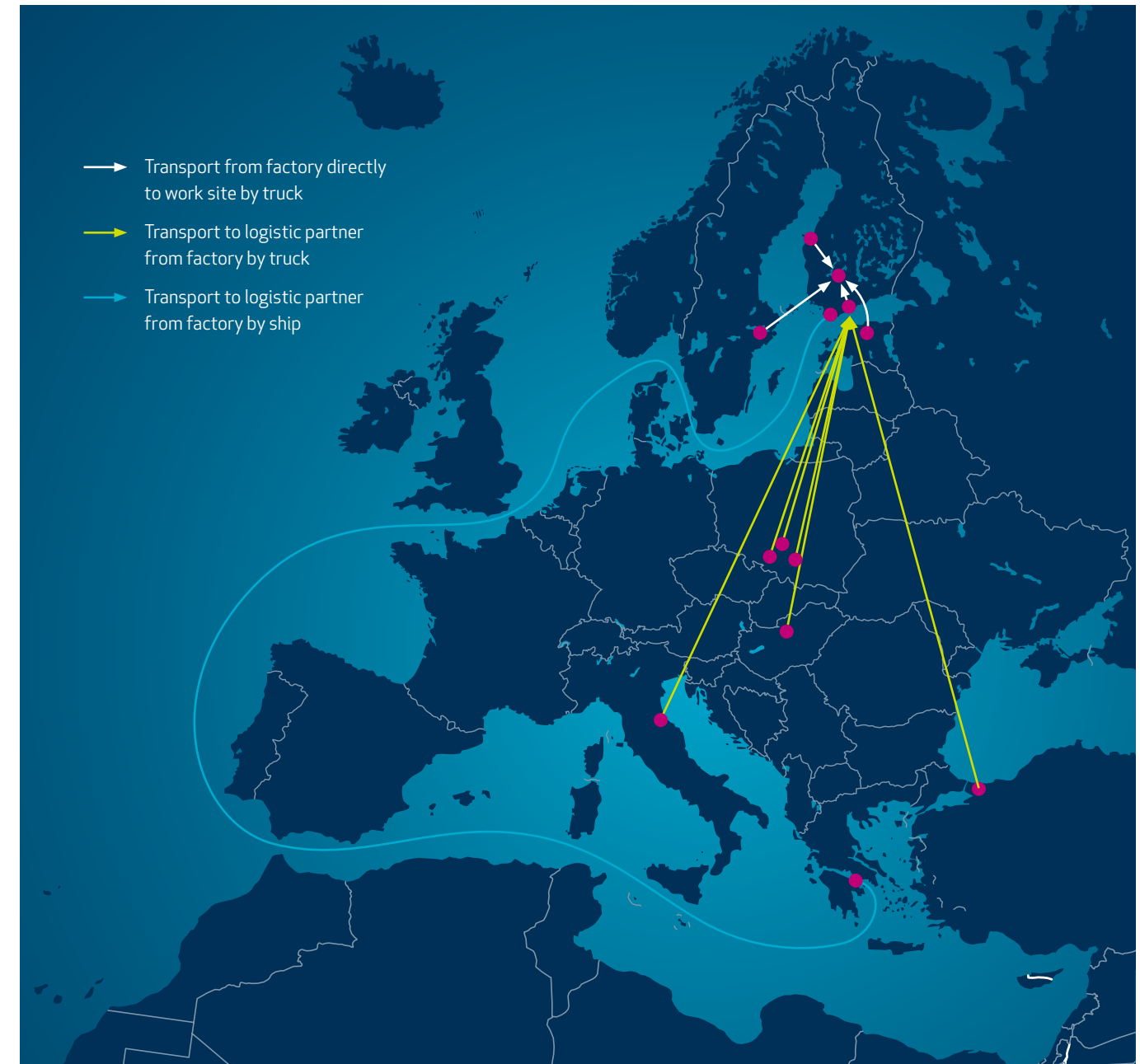
ABB Oy, Poland  
Siemens, Hungary  
Landis+Gyr Oy - Toshiba, India

#### SPECIAL TRANSFORMERS

Maviko Oy - Sonmez Transformer Company, Turkey  
Zennaro Electrical Constructions, Italy

#### POWER TRANSFORMERS, REMOTE SUBSTATION AUTOMATION

ABB Oy, Finland







EFFICIENT CIRCULAR ECONOMY THROUGH RECYCLING

Elenia is renewing the ageing electricity network by converting more than 3,000 kilometres of the network into weatherproof underground cabling per year. Dismantled old overhead line network generates a great amount of emolition material, which is recycled as raw materials or reused as materials for the maintenance and fault repairs of the overhead line network.

The recycling material generated in the demolition of the old overhead line network comprises electricity poles, transformers, overhead lines and diverse overhead line supplies. It is all processed for further use. Our partners sort the material already at the construction site, and all reusable material is stored in the partners’ warehouses. Elenia has recycled over 15,000 tonnes of decommissioned network materials this decade.

The oil from decommissioned transformers is tested for PCB. PCB-containing oil is appropriately processed.

Elenia’s recycling partner for metals is Fincumet Oy, member of the Fortum group of companies. Fincumet recycles aluminium, copper and iron as industrial raw materials in Finland and abroad. They are made into new products as part of the circular economy. Also other network materials, such as porcelain and meters, are utilised



All dismantled  
network  
materials are  
recycled.

through recycling. Fincumet also handles and recycles SF6 gas contained in transformer substations and switches.

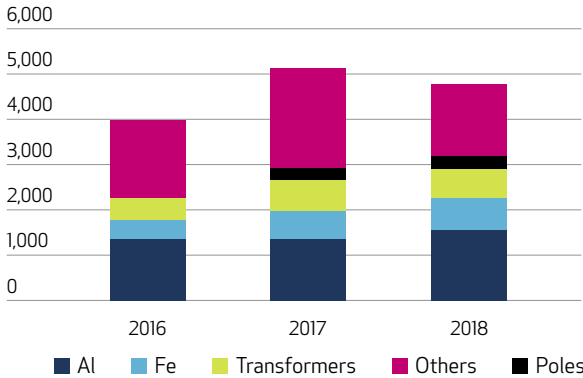
Elenia’s partner in the recycling of electricity poles is Fortum Waste Solutions. The majority of the poles are sold to professionals for reuse, such as earthworks, or recycled back into the electricity network to meet repair needs caused by storms, for example. Electricity poles permanently decommissioned from the network end up being recycled for energy at Fortum Waste Solution’s plant in Riihimäki.

OIL AND FUEL LEAKS AND WASTE DAMAGE

In case of an oil spill, our partner complies with our oil spill process. Oil spills can also be caused by storms, thunderstorms and equipment breakdowns, or sometimes by vandalism or theft. Such accidents numbered 35 in 2018, and the total volume of oil spilled was approximately 1,300 kg. Contaminated soil is taken to a waste processing plant, the soil is decontaminated and our environmental partner Ramboll collects samples of the decontaminated soil. Ramboll prepares a final report on the site, and it is submitted to the local Centre for Economic Development, Transport and the Environment and the municipality’s environmental authority for information. The aim is to always decontaminate the area in accordance with the Government Decree (214/2007) so that there will not be any need for further measures or supervision.

The table indicates the cumulative totals of different recycling materials at the beginning of the year for 2016–2018. Partners are responsible for recycling mixed and construction waste, and such waste and reused materials are not included in the volumes. Office waste is included in “Other”. Changes in waste volumes are caused by their re-definitions and expansion of the concept. The figure for other waste has also included porcelain, construction waste and impregnated wood, as of the beginning of 2017, to the extent that small volumes of them have been processed via the metal recycling partner.

RECYCLED MATERIALS (TN)



RECYCLED MATERIALS

Cumulative 12/2018

(tn)	12/2016	12/2017	12/2018
Aluminum, Al	1,356.7	1,321.9	1,561.5
Iron, Fe	414.3	686.1	714.9
Transformers	485.8	660.8	663.7
Others	5.9	238.0	270.9
Total, tons	2,262.6	2,906.9	3,211.0
Nominal waste, tn/km, rolling	1.5	1.7	1.4
Transformer failures, pc	23	30	35
Oil leak, kg	1,494	1,292	1,300



## Promoting energy efficiency and CO<sub>2</sub> calculation for the loss of electricity

By joining the voluntary energy efficiency agreements 2017–2025 programme, we are responsible for promoting energy efficiency in our business operations. The agreement sets us a concrete 13.2 gigawatt-hour waste savings target by 2025. The progress with the objective is monitored at an annual level via energy efficiency reporting maintained by Motiva Oy.

A Master's thesis in 2018 investigated a distribution network company's key ways of developing the assessment of energy efficiency activities. In addition to our in-house energy efficiency work, the results of the thesis work can be utilised throughout the industry in annual energy efficiency reporting.

As an example of concrete energy efficiency-promoting measures, 1,400 new energy-efficient distribution transformers were installed in our electricity network in 2017. They provide annual waste savings of approximately 1.4 gigawatt-hours. Renovating the overhead line network into a weatherproof underground cable network also improves the energy efficiency of electricity transmission.

Alongside network investments, we improve the energy efficiency of operations in cooperation with our customers. Energy effi-

ciency is supported through customer communications and diverse campaigns. An electronic Elenia Aina service has been developed for customers, allowing them to monitor their electricity consumption using mobile devices, for example. In the future, once the next-generation smart electricity consumption measurement system (AMR) has been deployed, customers will be provided with increasingly real-time data on electricity consumption.

As of the beginning of 2019, the energy efficiency agreement was integrated into our ISO 140001-compliant environmental management system and responsibility for coordination was included in the system. The change will include the calculation methods developed as part of the Master's thesis being included as part of systematic operations before the next energy efficiency reporting period. Allocation of responsibilities, reporting process and monitoring of objectives and results will be realised more efficiently in the future. Internal communication about the significance of the energy efficiency agreement is a target for improvement in our operations, and this should be focused on in the future.

## TAKING ENERGY EFFICIENCY INTO CONSIDERATION IN THE PROCUREMENT OF MATERIALS

Energy efficiency is taken into consideration in Elenia's procurement of materials, especially in the procurement of transformers and shunt reactors. In addition to the purchase price of the component, the criteria used in comparing bids have included idle and load losses during the service life. The criteria have been shown to have effects on the energy efficiency of the components procured, as the losses of the procured transformers and reactors are lower than the requirements imposed by the EU's EcoDesign directive for maximum losses. With regard to other components, reducing energy losses is not reasonable, as reducing the losses would in practice require increasing the amount of materials used in the component. The increases in material quantities would nullify the achieved energy efficiency benefits.





### EMISSIONS IN ELECTRICITY NETWORK OPERATIONS

In the electricity network operations, emissions are not very significant. Information covering operations has been collected systematically as of the beginning of 2019, and we monthly report emissions to Elenia's Board of Directors.

We began preparing CO<sub>2</sub> calculations at the beginning of 2018. The majority of Elenia's emissions are caused by electricity network losses. They can be calculated through electricity balance calculations. Electricity consumption was already being monitored before this.

Hourly monitoring was adopted in balance settlement for small customers at the beginning of 2012, making it possible to calculate losses in more detail. Network losses are influenced by how much our customers consume electricity. Therefore, setting direct emission targets is not essential to Elenia's operations. As the carbon footprint of Finland's electricity production becomes smaller, the emissions caused by Elenia's electricity network losses also decrease.

Elenia takes part in the optional energy efficiency agreements 2017–2025 programme to take responsibility for promoting energy efficiency in its operations. The agreement sets Elenia a concrete 13.2 gigawatt-hour loss savings target by 2025. As we reach this, the amount of emissions will automatically decrease. CO<sub>2</sub> emissions are primarily caused by leased cars, use of reserve capacity equipment and leaks of SF<sub>6</sub> gas used as the insulator gas of switching equipment, as well as electricity network losses, losses emerging in the use of Elenia properties and substations and the use of the street lighting network owned by Elenia in Vierumäki.

### MAKING EMISSIONS AND CARBON FOOTPRINT TRANSPARENT

We replaced vehicles with new ones in 2018, taking into account the emission limits pursuant to Elenia's vehicle policy. There were 9 old vans on a lease, and their CO<sub>2</sub> emissions were 206 g/km. There are 10 new vehicles as company cars and work vehicles under the new leasing agreement. The emissions of the vehicles are 135 g/km. In addition, there are 3 other company cars in use. Elenia's emissions limit for company cars is 130 g/km. This policy has been in force

since 2015. The aim is to update the vehicle policy in 2019 and reassess the CO<sub>2</sub> emission limits at the same time.

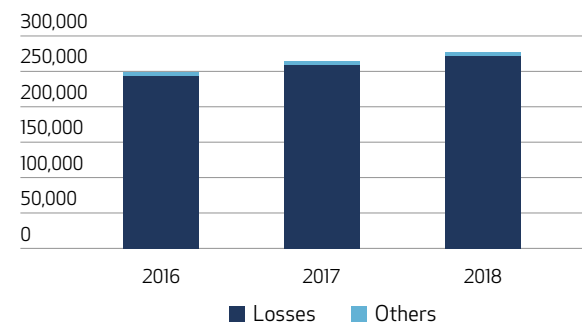
We only use reserve capacity equipment during network disturbances. At other times, they are only used in regular test use. The emissions of reserve capacity equipment are calculated based on the energy they supply to the network.

### FUTURE ALTERNATIVES FOR USING SF<sub>6</sub> GAS

We report leaks of SF<sub>6</sub> gas in accordance with the environmental damage processing, estimating the amounts in kilogrammes. The five leaks reported in 2018 amounted to 6.48 kilogrammes of the gas.

SF<sub>6</sub> gas is used as an insulator gas in switching equipment, primarily in the medium voltage switchgears of kiosk-style secondary substations. Equipment manufacturers have developed alternative manufacturer-specific switchgear options using different insulator mediums in recent years. Currently, there is no other alternative to SF<sub>6</sub> gas that would be as efficient or as reliable in the market. Elenia monitors the development of EU's fluorogas regulations and switchgear insulation medium alternatives, and engages in active discussion with equipment manufacturers regarding noteworthy alternatives to replace SF<sub>6</sub> gas.

### ELENIA'S CONSUMPTION OF ELECTRICAL ENERGY, MWH



Elenia participates in optional energy efficiency agreements.

### ELENIA'S OWN ELECTRICITY CONSUMPTION

Elenia's own electricity consumption is comprised of electricity consumption losses, the electricity consumption of substations and a few properties and the street lighting network in Vierumäki. The amount of losses is influenced by the volume of energy transmitted through the network, which in turn depends on the outdoor temperature.

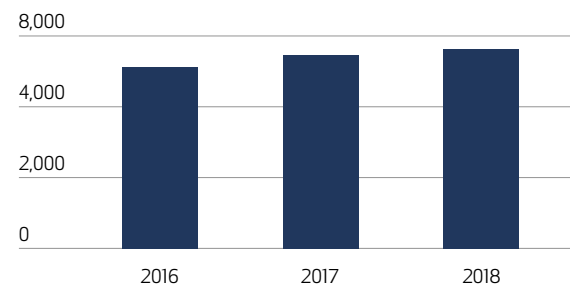
### ELENIA'S ELECTRICITY DISTRIBUTION VOLUME

Electricity distribution is Elenia's primary business operation. In particular, the volume of electricity transmitted to customers depends on outdoor temperatures and changes in the business operations of the biggest customers. In addition to electricity distribution, Elenia provides services for connecting production to the network. Our electricity network receives the electricity generated and transmits it to the main grid or consumers.

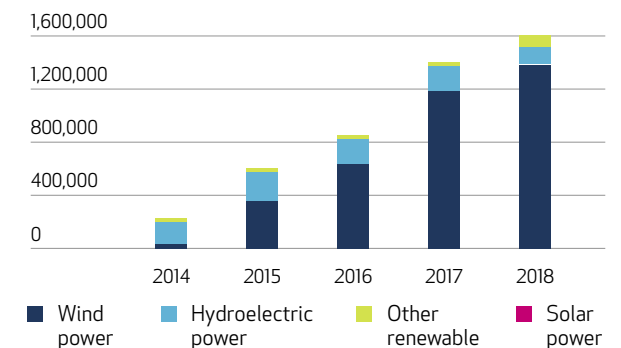
### SMART GRID AS A FACILITATOR OF THE ENERGY TRANSITION

Elenia takes part in building Finland's future energy system and makes it possible to connect renewable production to the network. In recent years, large wind farms have been connected to Elenia's network in Ostrobothnia in particular. The strong growth in renewable production can be seen in the energy received in Elenia's network.

### ELECTRICAL ENERGY TRANSMITTED TO ELECTRICITY NETWORK SERVICE CUSTOMERS AND OTHER NETWORKS, GWH



### RENEWABLE ENERGY FED INTO ELENIA'S NETWORK, MWH





## Utilising the new opportunities provided by the smart grid

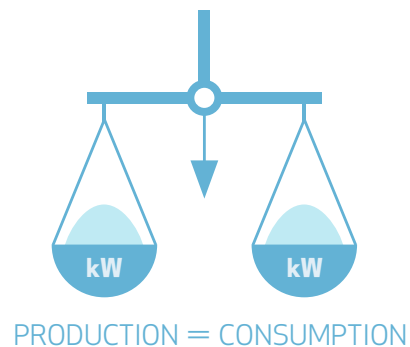
A smart grid functions as a service platform in the transformation towards a distributed low-carbon electricity infrastructure. Smart grids promote customers' active participation in the retail market. The increase in renewable weather-dependent production, such as wind and solar power, increases the demand for flexibility in consumption. Future challenges include the adequacy of electric power at peak hours, managing momentary production and consumption changes and maintaining the balance.

In 2014, we launched a project aiming to specify next-generation smart electricity metering. At the same time, it created a vision of the uses of smart electricity metering as part of the smart grid of the future. The work involved a significant number of Elenia's in-house and partners' staff. Once the specification was complete at the beginning of 2018, we started the public procurement procedure to procure a smart electricity metering system. The aim is to choose the partners for the development phase by the end of June 2019.

**Demand flexibility is coming also to private customers.**

Next-generation smart electricity metering offers more real-time information about electricity consumption and network load for use by customers and markets. This facilitates the efficient utilisation of distributed production, flexibility of the customer's consumption and safer operation of the electricity network. Smart electricity meters monitor the network state and, if necessary, independently perform protection measures, such as cutting off electricity supply to the customer when noticing a hazardous defect in the electricity network. In addition to this, a smart electricity meter can independently start more detailed measurements of the state of the electricity network if it notices deviations in the quality of electricity, for example. Smart electricity meters immediately report the data to the network company.

The smart grid working group established by the Ministry of Economic Affairs and Employment proposed in its final report that load control functionality be included in next-generation smart meters for customers with significant loads to be controlled. According to the working group, it is the task of the distribution network company to create the technical platform, while service providers create the actual control commands via an interface created by the network companies.



The consumption and the production of electricity must be in balance.

The electric power consumed by the customers is influenced by the electricity market.

A smart grid serves as a basis for controlling the electricity consumption.

An intelligent electricity market optimises the customers' electricity consumption automatically.

When the consumption is automatically optimised, less reserve capacity is required.

Power generated by the customers into the electricity network.

A smart grid enables virtual power plants and promotes the emergence of environmentally friendly electricity markets.





We are testing the functioning of technology pursuant to the smart grid working group's vision in a pilot project together with our customers. In 2018, we developed the load control possibilities of the smart grid in a virtual power plant project. Software supporting a new kind of a load control functionality was created for metering devices. In addition, an interface was implemented that market parties can connect to in order to carry out load control for their customers' metering devices and schedule the heating of customers' water heater or electric storage heating to take place when it best suits the electricity market. The load control functionality was tested with laboratory meters and metering devices installed for representatives of the personnel. We will continue to test load control during 2019 with a hundred customers living in our network area, installing next-generation smart electricity meters for them.

#### CONNECTING WIND POWER TO THE NETWORK

Slightly over one-fifth of all wind power in Finland is connected to Elenia's network. The production costs of wind power are increasingly low with technological development, and according to several studies, wind power is already the most affordable method of electricity generation in Finland. The amount of wind power continues to increase, and a lot of new wind power will be connected to Elenia's network in the next couple of years. In order to ensure sufficient network connection capacity in the future and being able to respond to connection needs, we must make investments in the high-voltage distribution network. At the same time, the investments will improve the security of supply and transmission capacity of the network.

We are an equal, active and trustworthy partner for wind power parties. It is our task to provide project developers with information about the prerequisites for connecting to the network with schedules and cost estimates as well as facilitate the connection of wind farms to the network. We meet wind power providers at industry events, are engaged in a continuous dialogue with them, monitor the legislation on the industry and bring up the point of view of network companies

At the end of 2018, there were 476 MW of wind power in Elenia's network. No wind power was connected to the electricity network in Finland in 2018; however, towards the end of the year, several projects kicked off on market terms, without government subsidies. We

#### Equal, active and trustworthy partner for wind power parties.

signed three new wind power connection agreements. In addition, there were connection agreements pending the construction of farms totalling 429 MW of connection capacity at the beginning of 2019. We also made several connection bids that we are hoping will lead to connection agreements and a further increase in wind power in our network.

The Energy Authority arranged a renewable energy subsidy competition in late 2018. Several parties waited for the publication of the tender, which increased uncertainty and, besides the develop-

ment of electricity prices, contributed to the amount of wind power not increasing in 2018. We took part in the preparation of the competitive bidding by being involved in a working group on the role of network companies in the competitive bidding and agreeing on consistent principles with the aim of ensuring the connection of projects that took part in the tender to the network. The results of the competitive bidding were announced in March 2019, and one of the seven winning projects was the Puhuri Parhalahti wind farm located in our network area in Pyhäjoki.

The competitive bidding and market-term projects will increase the amount of wind power by an estimated 50% in the next couple of years.





### CONTINUOUS GROWTH OF SOLAR POWER

The supply of solar power systems targeted at consumers has diversified and prices have gone down in recent years. The EU abolishing import duties on Chinese solar panels in the autumn of 2018 contributed to the recent development of the prices of solar power equipment, improving their profitability. The development of supply and demand has been visible as an increase in the number and capacity of equipment connected to the network.

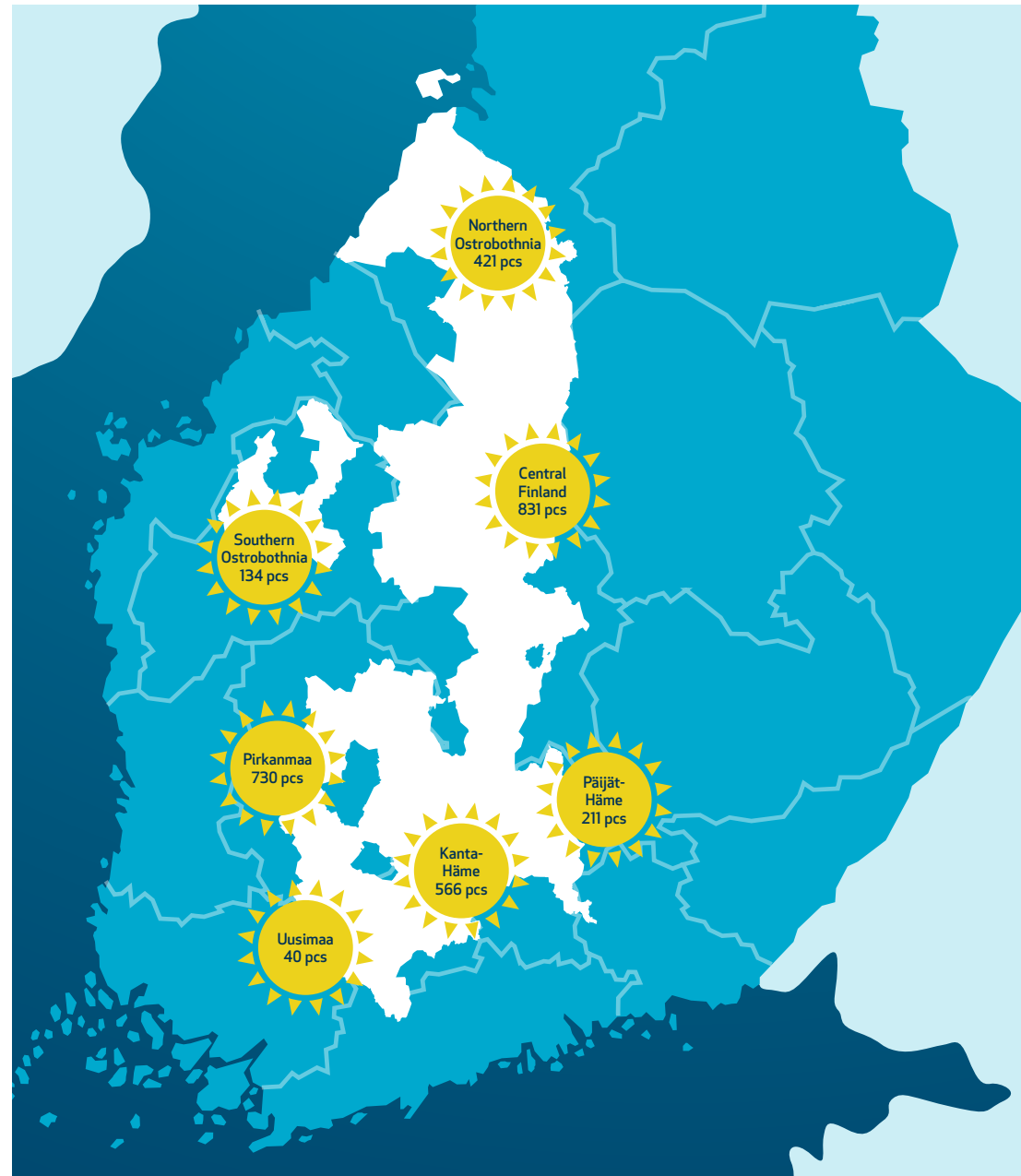
During 2017 and 2018, we developed the connection of solar power and small-scale production to the network by robotising the processing of general information forms and accelerating the granting of deployment permits to the customer. By developing and harmonising the operating methods of the process, we have aimed to make connecting solar power to the network as smooth and effortless for the customer as possible. Today, a correctly completed form can be processed fully automatically without human involvement.

### ENVIRONMENTAL VALUES STEER ELENIA'S ENVIRONMENTAL EFFORTS

The ISO 14001:2015 environmental management system steers Elenia's environmental efforts consistently, and it is also supported by our partner's environmental management systems. The national energy efficiency agreement for 2017–2025 will be integrated into the environmental management system in 2019 with centralised guidance. During the summer of 2018, we adopted a new electronic online learning tool that facilitates studying, regardless of time and place, for our

personnel and partners. Environmental induction was integrated into the tool, and all of our employees have completed it. This has allowed us to distribute environmental awareness more extensively and diversely than before.

The use of electronic signing and electronic agreements continues to increase. 94% of corporate customers signed an electronic connection agreement, with the figure for private customers being 83%. The automation of the agreement process was increased with the use of a robot. The aim is to have customers increasingly use electronic signing also with regard to land use agreements. Of the more than 15,000 land use agreements made in 2018, more than 13% were signed electronically. A land use agreement made using a mobile device is also under development.



### THE POWER OF SOLAR POWER EQUIPMENT IS INCREASING

At the end of 2018, there were 2,437 solar power production sites in Elenia's network. The combined power of small-scale producers was approximately 14 MW and that of bigger producers 5 MW. Slightly under a thousand new solar power systems were connected to our network during 2018. With regard to small-scale production of solar power, a trend can be seen where equipment powers are increasing. Even though the increase in the number of units was minor between 2017 and 2018, connected power increased by almost 1.4 MW year-on-year in 2018 (connected power was approx. 4.9 MW in 2017 and approx. 6.3 MW in 2018).

### SOLAR PANELS CONNECTED TO THE NETWORK, MONTHLY, PCS





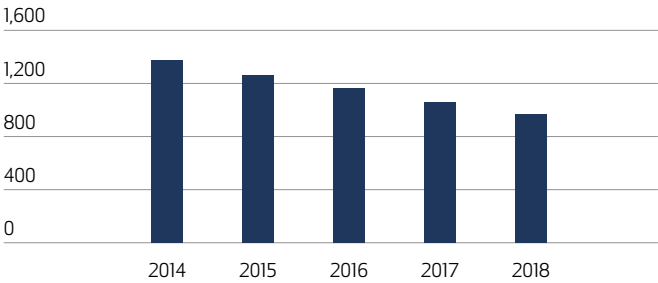


Our customers are given tips on day-to-day energy efficiency through electronic media and newsletters. They can easily monitor their own electricity consumption data in the digital Elenia Aina service. A functionality displaying the up-to-date reading of the electricity meter was added to the mobile application. This addressed the need caused by the meter reading being omitted from invoices, which only report the metered energy.

Our planning of the underground cable network includes assessing the local natural and environmental values and determining the best option for the terrain in question. In the environmental plan for each project, we assess the impact on air, water and soil, taking into account groundwater areas, historical sites and nature reserves, for example. We cooperate with the Centre for Economic Development, Transport and the Environment, National Board of Antiquities and Regional State Administrative Agency, among others. The groundwater area is an important natural resource. The number of pole-mounted transformers in our network decreases as the electricity network is converted into underground cables. In 2018, we removed more than 100 pole-mounted transformers from groundwater areas. In order to prevent oil spills, we checked more than 1,600 pole-mounted and kiosk-style secondary substations in groundwater areas.

Cooperation with bird enthusiasts, local residents and BirdLife Finland has increased the number of power line marker balls for birds to over 3,000 in our network area. Almost 300 new power line marker balls for birds were installed in the network in 2018. In 2018, sheep came to Luoto Island in Nokia to graze and keep vegetation low, as is customary. Over the years, the landscape has become more open and the flora and fauna of the meadows has diversified gradually. The sheep will continue their summer job in summer 2019 as a joint project between Elenia, Fingrid and the City of Nokia.

POLE MOUNTED TRANSFORMER SUBSTATION  
IN GROUND WATER AREA, 2014–2018, PCS







## SMART GRID WORKING GROUP'S FINAL REPORT PROVIDES THE FOUNDATION FOR FINLAND'S ENERGY SOLUTIONS

The electricity market-related objectives outlined in Finland's National Energy and Climate Strategy 2016 are to develop an effective European electricity market, promote joint Nordic electricity markets and achieve the targets related to the security of supply of distribution networks. Towards the end of 2016, the Ministry of Economic Affairs and Employment established a smart grid working group for the implementation of the strategy, tasked with developing a common view of the smart grids of the future and proposing concrete measures on how smart grids can improve customer participation in the electricity market and promote the security of supply.

Elenia actively took part in the work of the smart grid working group work as a permanent expert member and also through its stakeholders. The working group published its report in October 2018.

### KEY CONTENT OF THE FINAL REPORT

The working group considers that electricity consumption flexibility must be a competitive business, with the distribution network companies' load control being phased-out in a managed way. Market parties are also responsible for owning and operating storages. According to the working group, facilitating the joint billing of electricity transmission and sales increases the options available to the customer. The working group took a positive attitude towards energy communities and operators collecting customers' electricity production and consumption into larger entities. The aim is for new parties to participate in the electricity market equally on market terms.

The working group had a positive attitude towards replacing fixed electricity transmission charges with a power component, allowing the customers to influence their transmission invoices more. The harmonisation of transmission fee structures will clarify the transition.

The working group did not support the adoption of proportional electricity tax and deemed that taxes on electricity storage should be repealed.

Load control proposed for new smart meters provides a large number of customers with consumption flexibility. In addition to the electricity market, the customer can offer their flexibility to network management. Flexible services can postpone or replace network investments. Regulation must guide network companies to solutions that are optimum from the point of view of customers and society. The technical systems of buildings should be designed to support flexible consumption. As smart devices become more common, the adequate cyber security of the system needs to be ensured. Cooperation across sectoral and organisational boundaries must be expanded to survey, prevent and recover from cyber security threats.

The working group also stated that the proposals will result in significant changes to customers, making communications and guidance very important.

Elenia's objectives are aligned with the views of the smart grid working group. The working group's views support Elenia's perspective on the role of electricity distribution network companies in the electricity market, as well as the development of the markets in line with customer needs. A smart grid allows customers to actively participate in the electricity market, promotes security of supply, facilitates flexibility and connection of decentralised renewable energy, as well as the development of electric transport. This way, the smart grid becomes a key part of combatting climate change.

Source: <https://tem.fi/en/working-group-to-explore-smart-grids-potential-for-the-electricity-market>







## SOCIAL IMPACT

We create value for the society.



## Value creation at Elenia 2018

### CREATED VALUE AND IMPACTS

#### CUSTOMER VALUE

Electricity distribution to  
430,000 customers  
Reliability of electricity  
distribution 99.98%  
NPS 36

#### PARTNERSHIPS

Over 1,000  
Significant local employment  
effect

#### ECONOMIC VALUE

Investments  
€148.1 million  
EBITDA of electricity network  
operations €169 million  
Taxes and levies €10.4 million

#### CIRCULAR ECONOMY AND EMISSIONS

All of the materials derived from  
the demolition of old overhead line  
networks are recycled or utilised  
in energy production  
CO<sub>2</sub> emissions 72,800 tonnes,  
mainly due to loss electricity

#### SOCIAL VALUE

Reliability of electricity distribution  
Renewal and weatherproofing  
of the ageing network  
Innovation  
Direct and indirect employment  
Employee experience 70.9  
Brand equity

### BUSINESS MODEL

Vision, mission and strategy  
Management model  
Values

#### BUSINESS PROCESSES

##### ELECTRICITY DISTRIBUTION BUSINESS

Network management process  
Electricity transmission process  
Outage management process  
Connections and supplementary  
services process

##### SERVICE BUSINESS

Customer service

#### SERVICES

Electricity supplied to  
customers 6,440 GWh  
New electricity connections  
Connecting renewable  
energy to the network

E-services  
Electricity market  
services  
Energy sector  
customer service

#### SUPPORT FUNCTIONS

Finance, HR, Cybersecure ICT Solutions  
and Services, Legal Affairs and Risk  
Management, Communications

### RESOURCES AND INPUTS

#### PERSONNEL AND COMPETENCE

267 employees  
Training hours 20h/  
employee/year  
70% have university degrees  
Professional skills

#### PARTNERSHIPS

Contractors,  
service providers,  
suppliers,  
stakeholders,  
investors,  
public affairs

#### ELECTRICITY NETWORK

72,000 km electricity network,  
underground cabling rate 45%  
Replacement value of the  
electricity network €3.0 billion\*

#### ECONOMIC

Issued bonds €1.7 billion  
Adjusted equity tied up in  
electricity network operations  
€1.1 billion\*  
Credit rating BBB (S&P)

#### INTANGIBLES

Smart grid innovations,  
network licence, certificates  
related to occupational health  
and safety, environmental  
management and asset  
management, customer and  
network data, brand

#### NATURAL RESOURCES

The purchased cables contain  
4,740 tonnes of aluminium,  
5,040 tonnes of PE plastics  
and 17 tonnes of copper.  
Transformers contain  
416 tonnes of oil  
Loss electricity 270 GWh

\* Energy Authority 2017





# Extensive cooperation

## STAKEHOLDERS

### OWNERS AND INVESTORS

Sustainable network development  
Management of network assets

### AUTHORITIES AND ORGANISATIONS

E.g. Ministry of Economic Affairs and Employment;  
Energy Authority; Finnish Safety and Chemicals Agency;  
Centres for Economic Development, Transport and the  
Environment; Regional State Administrative Agencies;  
Central Union of Agricultural Producers and Forest  
Owners; rescue authorities; trade unions

### CUSTOMERS

Quality and efficiency of service and electricity distribution  
Promoting energy efficiency

### INFRASTRUCTURE NETWORK OWNERS

Parties responsible for road infrastructure maintenance  
Telecom and broadband operators  
Water utilities

### COMPETITORS

Continuous renewal  
Improving efficiency

### CONTRACTORS, MATERIALS SUPPLIERS AND OTHER PARTNERS

Quality and efficiency  
of service and electricity distribution



# ELENIA

### CITIES AND MUNICIPALITIES

As customers  
As partners  
As authorities

## OPERATING ENVIRONMENT

### REGULATION

EU legislation and regulations  
Energy policy  
Regulation of network companies

### SAFETY

Customer safety  
Occupational health and safety, well-being at work  
Cybersecurity  
Security of supply

### TECHNOLOGICAL DEVELOPMENT AND DIGITAL TRANSFORMATION

Technology dependence  
Service automation  
Rate of change

### SOCIETY

Security of electricity distribution  
Sustainable network development  
Promoting energy efficiency  
Schools and future talents

### ELECTRICITY MARKETS

Market parties  
Renewable energy production  
Decentralised small-scale production

### PUBLICITY

Informational services  
Reputation management  
Employer image

### ENVIRONMENT

Electricity network lifecycle management  
Material and logistics management  
Responsible land use  
Circular economy and recycling materials





## Risks and opportunities of climate change have impacts

The energy system is undergoing a transformation. In order to mitigate climate change, carbon dioxide-based energy sources must give way to renewable energy. This requires new kinds of technology and a smart grid. The aim is to keep climate change under control through emission-free energy sources. Solar and wind power operate differently from conventional production methods, as their production volumes depend on the weather.

We have been building a smart grid for a couple of decades now. The smart grid is becoming an increasingly important part of the struggle against climate change, to efficiently utilise electricity network generated with solar and wind power.

We were the first in Europe to install smart meters in the early 2000s. We are currently testing a next-generation metering system, and its new meters will be installed extensively in the next couple of years. Convenient flexible electricity consumption solutions will be introduced to homes during the next decade. They are required for balancing out the fluctuations in solar and wind power production.

The next generation of meters can control the electricity consumption of homes without compromising convenience. In the future, home equipment can be activated automatically when electricity is cheap. For example, electric-storage equipment can be heated and electric cars charged when the price of electricity is at its lowest. This is what flexible consumption is about.

We are also investigating opportunities for electricity consumption flexibility in a project in which we are testing the use of batteries with a smart grid in cooperation with Fortum.

We utilise the circular economy to mitigate climate change. We improve waste management and appropriately recycle waste materials from network construction. We support small-scale electricity production by making it easy to connect it to the electricity network. Moreover, increasing electric transport will require smart network solutions.

The weather risks of climate change to electricity network services will increase. We have worked a lot to mitigate them. Since 2009, we have been building a weatherproof underground electricity network to replace the ageing network. During disturbances, automation solutions increase the efficiency of power recovery when targeted network controls in real time result in shorter power outages.

### The next-generation smart metering is coming.

#### SOCIAL SIGNIFICANCE OF RESPONSIBLE ELECTRICITY NETWORK INVESTMENTS WILL GROW

The significance of the security of electricity distribution is continuously emphasised. Digitisation and an increasingly electronic society set requirements for the reliability and quality of electricity distribution. Extreme weather phenomena becoming more commonplace with climate change will cause risks to the overhead line network, especially in forested areas where storms, thunderstorms and snow loads cause power outages by damaging trees. Also, forest fires caused by drought and freezing rains, which are rare in Finland for the time being, are a threat to electricity distribution using an overhead line network.

We decided to replace the ageing overhead line network with a weatherproof underground cable network already in 2009. Including harm to customers, the life cycle costs of an underground cable network are lower than those of an overhead line network. In addition to the security of electricity distribution, the underground cable is a sustainable solution from an environmental and safety point of view.

We proactively see to the compliance, safety and environmental impacts of the electricity network, following the principles of sustainable development. Our planning of the underground cable network includes assessing the local natural and environmental values and the best option for the terrain in question. We prepare an environmental plan for each project to assess the environmental impact on air, water and soil, and we take into account groundwater areas, historical sites and nature reserves.

The old network is continuously being replaced by weatherproof underground cables and environmentally friendly park transformers, from which transformer oil will not leak into the soil if the transformer is damaged. The underground cable also has benefits in terms of land use. When overhead lines are replaced by underground cables, significant amounts of forest and agricultural land are released for use. As forests increase, carbon sinks increase.

The aim of our underground cabling strategy is to promote efficient placement and permit practices for electrical equipment and cabling in cooperation with Finnish Energy as well as other industry participants, public authorities and municipalities. We also promote joint construction with other infrastructure developers. We have carried out several joint construction projects in which fibre-optic connections







were installed for telecommunications operators in conjunction with the installation of underground cables. This benefits everyone – in particular the customers.

Our electricity network investments have a significant impact on employment. Elenia's project to reform the electricity network has provided contractors, subcontractors and other partners with approximately 10,000 FTE years of employment over a decade. Construction work, continuing well into the next decade, continuously provides energy sector professionals with employment throughout our network area in Häme, Pirkanmaa, Central Finland, South Ostrobothnia and North Ostrobothnia.

#### SOCIAL SIGNIFICANCE OF INFRASTRUCTURE INVESTMENTS

Elenia is a forerunner in smart grids, and has worked with great determination to promote the digitisation and automation of the electricity network. The role of a DSO is to facilitate the electricity market. A DSO does not take part in the exchange of electricity, but

is, however, responsible for the electricity network infrastructure on which the electricity market operates.

The Finnish electricity market has developed at a rapid rate, and it is currently the most advanced in Europe in terms of the customer's position and how real-time and transparent the market is. Elenia's investments in digitising the electricity network, such as the adoption of smart metering in the 2010s, have been a significant step in the development of smart grids.

The digitisation of electricity networks has improved the quality and safety of the operation and maintenance of the electricity network and, above all, services provided to customers. Thanks to smart meters, the basic functions of the electricity market, such as invoicing, have become clearer and their reliability has improved considerably. With regard to service development, electricity consumption monitoring services provided to customers have become part of energy companies' basic service, and customers' insight into their own electricity consumption is developing all the time.

In spite of the renewal of the electricity network and electricity market services during the past 10 years, the majority of the services are still general information such as reporting services, not electricity consumption-guiding services that would provide actual added value. Further development of the smart grid and investments are required for this change to take place.

Elenia has continued its determined work to promote reforms in the industry. We will take the next significant leap in the development when we replace current smart meters with a next-generation smart metering system and meters. We launched the reform project in late 2018, and the project will continue until 2024. It includes replacing over 400,000 customers' meters. In addition to Elenia's in-house employees, the renewal of the network will extensively employ Elenia's partners.

New metering technology provides completely real-time data on electricity consumption and also facilitates guiding the consumption, allowing the customer to participate in the electricity market through flexible consumption. This way, the smart grid will become a platform for combinations of renewable energy – including solar and wind – as well as flexible consumption and virtual power plants as part of the fight against climate change.

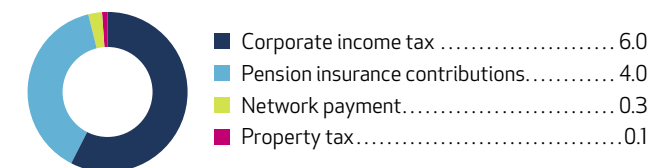
#### ELENIA PAID €10.4 MILLION IN TAXES AND LEVIES

Elenia distributes electricity to 430,000 customers in approximately one hundred municipalities. Its headquarters are located in Tampere, and pays its taxes in Finland. Elenia's revenue from the electricity network business in 2018 was €73.2 million and EBITDA amounted to €169.0 million.

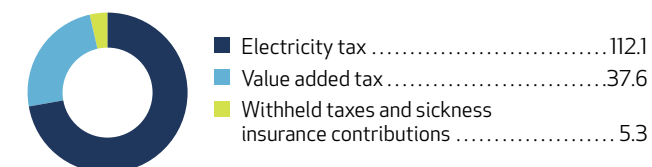
A DSO is responsible for electricity distribution in its area and charges the customer for electricity tax and value added tax in conjunction with the transmission fee, remitting them further to the state. Electricity tax is paid on the consumption of electricity. The collection of electricity tax, on the other hand, is prescribed to be collected by the companies responsible for electricity distribution by law, with the Parliament deciding the tax rate. The tax comprises electricity excise and emergency supply fee, collected in full from the DSO. In recent years, the electricity tax collected in Finland has totalled approximately €1.2 billion per year.

In 2018, Elenia collected and remitted a total of €112.1 million of electricity tax. With regard to value added tax, the company remit-

#### TAXES AND LEVIES PAID (€ MILLION)



#### TAX COLLECTED AND REMITTED (€ MILLION)



ted the net sum of paid and charged taxes. Last year, Elenia collected and remitted a total of €155.0 million of taxes and levies. The collected taxes and levies are not included in Elenia's result; with regard to them, the company is a third-party invoicer.

As a business, Elenia paid a total of €10.4 million of taxes and levies in 2018. Based on its result for the financial year 2018, Elenia paid more than €6 million of tax. The paid corporation tax includes advance payments made during the year, final taxes for previous financial years and allocated taxes, but not deferred taxes.

The statutory electricity and natural gas network fees charged by the Energy Authority from all distribution network owners in Finland totalled approximately €3.8 million, of which Elenia accounted for slightly over 9%, or more than €300,000.

Elenia invested €148.1 million in developing electricity networks in 2018. Our target is to achieve a 75% underground cabling rate by 2028. In 2019, Elenia will spend approximately €145 million on building over 3,000 kilometres of weatherproof underground cable electricity network. The construction work provides employment to contractors and other energy industry professionals in Elenia's network area on a continuous basis. The wage expenses of Elenia Group's personnel on the whole totalled €16.7 million last year.





## CONTINUITY AND FORESIGHT AS A DRIVER OF COOPERATION

Our open cooperation with stakeholders and advocacy organisations is systematic and regular. We monitor the authorities' information and decision-making and exert influence proactively through development projects. We actively participate in the efforts of Finnish Energy Industries to develop the entire industry. We cooperate with the Electrical Contractors' Association of Finland (STUL). Our aim is to activate the electrical contractors of the Electrical Contractors' Association of Finland (STUL) to expand their services into electricity distribution networks and to network with electricity network contractors and civil engineering companies. We are members of the national coordination group for the electrical and telecommunications industries.

In particular, we prioritise cooperation with municipalities, and we engage in regular cooperation with teleoperators and other network companies. We present all construction projects to the representatives of cities and municipalities and to other stakeholders in the autumn preceding the construction. At the same time, we survey cooperation opportunities with other infrastructure construction projects. In 2018, we presented sites to 50 municipalities and all of the telecom companies in the area.

Elenia's investment programme provides employment in the amount of approximately 1,000 FTE annually. Our contract and agreement models increase the continuity and predictability of operations for our partner companies. We make the seasonal fluctuations of the construction industry easier by planning the resources and schedules early.

In joint construction, our starting point in specifying the agreements is in profitable business and the operational prerequisites of an SME. Our flexible procurement models make possible the use of services of diverse parties and the successful completion of projects. In joint projects, the flow of information is smooth and any challenges are resolved without delay, taking every party's needs into consideration. The challenge in joint construction is to coordinate the projects of different parties in time. Uncertainty is caused by the funding schedules of fibre-optic projects and the progress of obtaining building permits.

## JOINT CONSTRUCTION GOES SMOOTHLY

Of the annual underground cable construction along a distance of more than 3,000 kilometres, the share of joint construction was approximately a quarter in 2017 and 2018, and the same level will continue in 2019 and 2020. After this, uncertainty is caused especially by the state's possible subsidies for builders of broadband networks. We have had very good experiences from joint construction and coordination of projects. Elenia's customers and landowners have also given positive feedback. The most extensive projects in the construction phase in 2019 will be in Pälkäne with Pälkäneen Valokuitu Oy and in Reisjärvi with R-net Oy. In Pälkäne, the joint route section was estimated to be 75% in the start-up phase. The actual figure has increased to over 90%.

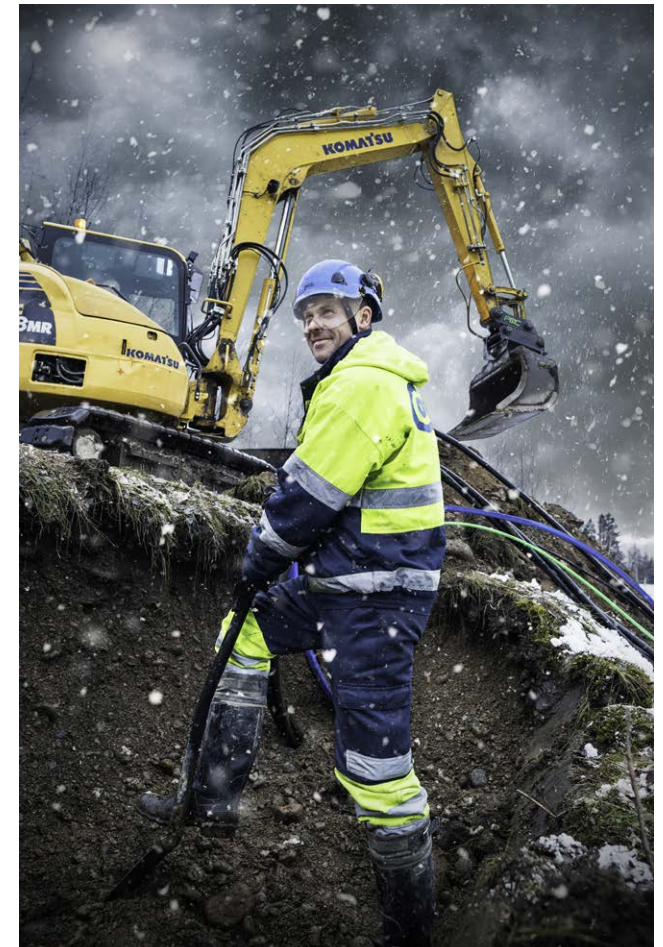
**Savonlinnanmäki Mänttä-Vilppula** Elenia, Pohjois-Hämeen Puhelin and the City of Mänttä-Vilppula combined their construction projects in the Savonlinnanmäki district in 2018. Elenia will build an electricity network in the area, Pohjois-Hämeen Puhelin an optic fibre network and the city a street lighting network. The contract will be completed in 2019 and the demolition of the old network in spring 2020.

**Raudanmaa village fibre** Elenia and the village of Raudanmaa built an optic fibre network and weatherproof electricity network together in the village area at Elenia's initiative. The village association received a grant for funding the optic fibre network from the European Agricultural Fund for Rural Development, which in part made the project possible. [www.raudanmaa.com/kyläkuitu](http://www.raudanmaa.com/kyläkuitu). The project has continued in 2018 and 2019.

**Ruovesi** The Centre for Economic Development, Transport and the Environment is funding five optic fibre projects in Ruovesi, Pirkanmaa. Pohjois-Hämeen Puhelin's village fibre model brought the village communities developing their residential areas to implement the projects. In order to facilitate the grant from the Centre for Economic Development, Transport and the Environment, Elenia Oy and Pohjois-Hämeen Puhelin Oy, Tuuhosen kyläyhdistys ry, Jämkipohjan JÄMÄ ry, Väärinmajan Maa- ja Kotitalousseura ry, Visuveden Kyläyhdistys ry and Muroleen Kylät ry concluded an agreement on the joint construction of an optic fibre network and electricity network in 2018. The construction of a weatherproof electricity network and optic fibre network is being implemented in 2019.

Eeva Kyrönviita, municipal manager of Ruovesi: "This is an important thing for the municipality as well. When telecommunications connections are brought up to meet today's requirements, it increases the appeal of the municipality among businesses and residents alike. It is great that we get to be a forerunner in advancing development, being a vital and developing municipality." Source: PHPOY press release 16 January 2018

**HSK Sähkö Oy** HSK Sähkö Oy is a family-owned company established in Kalajoki in 2004. In 2018, HSK Sähkö's revenue reached EUR 10.7 million and it had approximately 70 employees. Together with the affiliated company Joupet, the personnel numbers approximately 120 professionals. HSK Sähkö Oy has been building weatherproof electricity networks for Elenia since 2012. In 2018, the company was rewarded at Elenia's partner days for the highest quality of project contracting.







## Good corporate governance and transparency as the foundation of responsibility

Good corporate governance and transparency lay the foundation for Elenia's responsible operations, and they serve the interests of Elenia's customers, shareholders and investors, partners, employees and the general public, among others. The decision-making bodies responsible for Elenia's governance and operations are the general meeting of shareholders, Board of Directors and CEO. The Board of Directors is tasked with seeing to the company's administration and appropriate organisation of operations. In 2018, the Board of Directors established three committees: Nomination and Remuneration Committee, Audit and Risk Committee and Safety, Health and Environmental Committee.

Internal audit is an independent and neutral function securing the effective implementation of governance, risk management and control measures, which provides Elenia's business functions with added value. The Board of Directors is responsible for monitoring the effectiveness of internal control, internal audit and risk management systems, and among other things, it approves the annual internal audit plan and focal areas and reviews the operations of risk management with the help of regular reporting. The CEO sees to the company's day-to-day administration in accordance with the instructions and orders issued by the Board of Directors, supported by the management team.

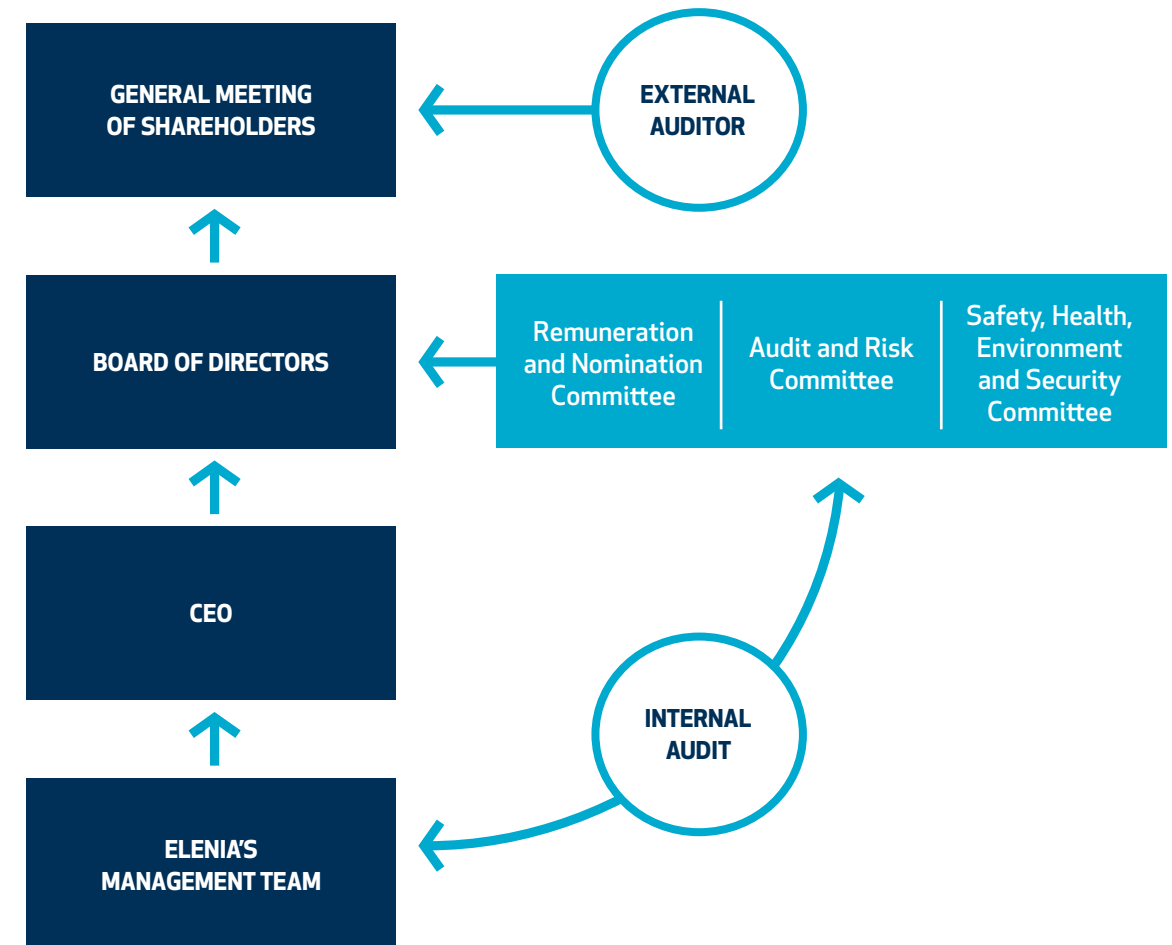
The annual general meeting held on 25 March 2019 appointed Ernst & Young Oy, Authorised Public Accountants, as Elenia's auditor.

In its investor communications, Elenia complies with the EU's Market Abuse Regulation (596/2014) and the rules of the London Stock Exchange.

### MANAGEMENT OF RISKS AND OPPORTUNITIES AS PART OF STRATEGIC AND OPERATIONAL MANAGEMENT

Comprehensive risk management is part of all management and daily operations at Elenia Group. The foundation for the identification of risks and opportunities and their processing is laid down by Elenia's risk management policy and separately specified procedures, such as regular measures determined by the annual risk man-

## Governing bodies of Elenia





agement plan. These joint guidelines and procedures cover the identification, assessment and reporting of both risks and opportunities, as well as measures to control the risks and opportunities.

The group's joint risk register includes descriptions of significant risks and opportunities, their effects, probability and extent on an annual level as well as the measures to be carried out to manage the risks or grasp the opportunities. In addition, management systems, namely the environmental management system, the occupational health and safety management system, and the asset management system, play a significant role with respect to the risk register and risk management activities. Development work to create and adopt an information security management system is underway.

The annual risk management measures proceed in accordance with the annual plan together with the management teams and key employees. The management of Group companies is responsible for including comprehensive risk management in strategic and operative management and business processes. Business units and processes are responsible for risk identification and assessment as well as the planning, implementation and monitoring of risk management measures.

The Legal Affairs and Risk Management unit is responsible for comprehensive risk management, reporting and monitoring relating to the planned measures and, in particular, the development of the Group's risk management. Elenia has launched a development project aiming to develop comprehensive risk management with the help of an enterprise risk management framework. The aim is to strengthen the utilisation of the management of risks and opportunities as part of strategic management.

Exceptional weather phenomena and disturbances in the electricity distribution and customers' electricity distribution caused by them are a concrete example of Elenia's biggest risks. Underground cabling of the electricity network in accordance with the Elenia Weatherproof concept is effective risk management, and Elenia is committed to its systematic implementation. The development of the automation of the electricity network is an example of opportunities associated with the management of the weather risk and provide significant benefits in shortening power outages.

## Information services of network construction and maintenance for landowners.

### COOPERATION WITH LANDOWNERS

Maintaining and developing sustainable operating methods in land use is part of our day-to-day work. We take the wishes of landowners into consideration and openly communicate about land use needs to landowners and other stakeholders. We commit all of our partners to sustainable operating methods.

We use open discussion and arrange joint meetings with MTK (Central Union of Agricultural Producers and Forest Owners) on land use and the development of operations. Communicating to landowners is a challenge for us, and we will be paying attention to it in the future. We actively develop direct SMS notices to better reach our customers. The first messages concerning clearance in the low-voltage network have been sent to support newspaper notices. We have actively taken part in private road events organised by the Forest Centre, and negotiated on recommended practices relating to cabling in private roads in cooperation with local road cooperatives.

We take landowners into account in the planning, construction, operation and maintenance of the electricity network. We carry out electricity network clearance annually in the areas of approximately 18,000 landowners. We conclude almost 20,000 new agreements with private landowners, of which 14,000 are connected to the construction of a weatherproof electricity network and the rest to adjacent

forest and border zone loggings. Equality is important to us, and we apply the same compensation and agreement practices with all of our customers.

Our website features a separate section for landowners, openly reporting on land use-related agreements, compensation practices and the completion of projects

We regularly monitor the satisfaction of landowners in tree management projects and weatherproof electricity network construction projects. The results have direct impacts on the quality scores of our partners, and thereby on our partner choices.



## QUALITY AWARD FOR KNK NETWORKS

Our partner KNK Networks was rewarded for excellent landowner satisfaction with a quality award in October 2018. KNK Networks has developed its landowner communications to a new level by informing landowners as the construction process of the weatherproof electricity network proceeds. In addition, the results of the company's landowner satisfaction survey have remained at a very good level for a long time.





## Elenia's responsible partnership also as a service provider

Elenia Oy's subsidiary Elenia Palvelut Oy is an energy-sector service provider, founded in 2015, that has created a new kind of customer service concept for the energy sector. Elenia's customer service concept provides energy companies with comprehensive energy-sector customer service that not only includes conventional customer service but also service processes and information systems associated with the provision of customer service. Elenia Palvelut is pursuing the role of a reliable and responsible energy-industry service provider by guaranteeing its customers high-quality and professional customer service production and partnership in the development of operations.

Even though all of Elenia Palvelut Oy's customers are corporate customers, Elenia primarily provides customer service to private customers. Therefore, it is important that, as a partner in charge of customer service, we know the industry well and the strategic cooperation is based on a partnership instead of outsourcing. Customer service and its quality are key areas from the point of view of the reputation and financial performance of companies. The service must work in all situations.

Elenia has built its customer service production, as well as other business activities, on the Group's values – close to the customer, achieving together, reliable partner and courage to renew. Elenia's strong operating model, aligned with the values, expertise in the energy industry and the partnership model built with the customer company, create a unique entity for developing customer service in the energy industry.

The current customers of Elenia's customer service concept include, in addition to Elenia Oy and Elenia Lämpö Oy, Jyväskylä Energy Ltd (1/2017), Tampereen Sähkölaitos Oy (5/2017), Auris Kaasunjakelu Oy (5/2017) and Lahti Energy Ltd (4/2018). Elenia will continue the development of its customer service concept together with its customers, and the aim is to increase the customer service business in future years as well.





# Reporting principles

The 2018 Sustainability Report is Elenia Oy's and Elenia Palvelut Oy's first sustainability report. The report also covers Elenia Finance Oy. In this first report, we have applied the Global Reporting Initiative (GRI) standards and presented information in accordance with the GRI Electronic Utilities industry supplement with respect to Elenia's material themes of sustainability. The Group's reporting for 2018 also includes the 2018 Annual Review, which contains the financial information for the Group and its parent company Elenia Oy. The report is available online at <https://www.elenia.com/en/investors/financial-reports>.

Our sustainability reporting covers Elenia's operations in the recent years, with an emphasis on 2018. It also provides information on 2019 and includes a look at the Group's long-term future. The aim of the Sustainability Report is to describe Elenia's sustainability in terms of the work that has already been done and the future impacts of our sustainability efforts.

## DEFINING THE CONTENT OF THE REPORT

The content of the report is built around the structure of the sustainability programme launched in 2018, at which time the management and experts carried out the first materiality analysis of Elenia's sustainability and its material themes. This work will continue in 2019 as planned by even more extensively incorporating the views of the personnel and stakeholders regarding Elenia's services and operations. More information is provided on pages 9–23 of the report.

We have comprehensively identified Elenia's needs and opportunities for engagement with our various stakeholders as part of our day-to-day work. Our stakeholder cooperation is defined in a plan that covers all of our stakeholders except employees, customers and the media. For these three groups, stakeholder engagement and cooperation are largely incorporated into the continuous development of business in accordance with various targets and methods, as described in this Sustainability Report.

## DATA MEASUREMENT, CALCULATION AND REPORTING PRINCIPLES

This Sustainability Report is focused on 2018. Figures for previous years are also shown where available. Some of the figures also include data for the early part of 2019. All of the reported information is part of Elenia's ongoing reporting. For the 2018 Sustainability Report, the designated experts have collected the necessary data and forwarded the information to Elenia's communications department, which then compiled this report.

The GRI content index covers GRI Standards content to the extent that the data was available. As we move forward with our sustainability efforts, we will further develop our performance indicators and data collection methods. More information on this will be provided in our future sustainability reports.

## EMPLOYEE DATA AND REPORTING ON SAFETY

The figures concerning the Group's own personnel include Elenia's own employees and the leased employees used by Elenia Palvelut Oy.

The number of safety observations includes observations reported by employees, partners and other stakeholders through various channels. Contractual partners also report occupational accident information for the subcontracting chain where applicable.

## MATERIALS AND WASTE

The figures provided for recycled materials are mainly related to recycled metals that originate from decommissioned overhead lines. This data is collected in electronic reporting systems in cooperation with the recycling service partners. The figures also include the waste generated at Elenia's office, which is categorised as Other waste.

## CO<sub>2</sub> EMISSIONS

The reported total emissions include loss electricity from the network, the Elenia's own electricity consumption, emissions estimated based on the electricity generated by reserve capacity equipment, the electrical energy consumed by Elenia's Vierumäki Valmisvalo street lights and the emissions figures for Elenia Palvelut Oy's leased vehicles.

In the electricity network business, emissions are of low significance. More information is provided on [page 47](#). The majority of Elenia's emissions are caused by electricity network losses and they are based on electricity balance calculations. The electricity delivered to Elenia is produced in accordance with the residual mix of electricity production in Finland. The emissions for electricity according to the residual mix amounted to 264.04g/kWh in 2017, which was the most recent figure available at the time of writing this report.

## MORE INFORMATION

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## GRI-index

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102-7	Scale of the organisation	6	
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102-10	Significant changes to the organisation and its supply chain		The division of responsibilities between Elenia Oy and Elenia Palvelut Oy was specified further at the beginning of 2018.
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GRI	CONTENTS	PAGE	NOTES
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102-48	Restatements of information		The 2018 Sustainability Report is Elenia's first sustainability report.
102-49	Changes in reporting		The 2018 Sustainability Report is Elenia's first sustainability report.
102-50	Reporting period		The 2018 Sustainability Report mainly describes the calendar year 2018.
102-51	Date of most recent report		The 2018 Sustainability Report is Elenia's first sustainability report.
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Elenia and  
sustainability 2018  
report was  
produced by

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All of our personnel  
is participating with  
its work in Elenia's  
sustainable activities  
and service.