

Caruna's year



ANNUAL REPORT
2018



caruna

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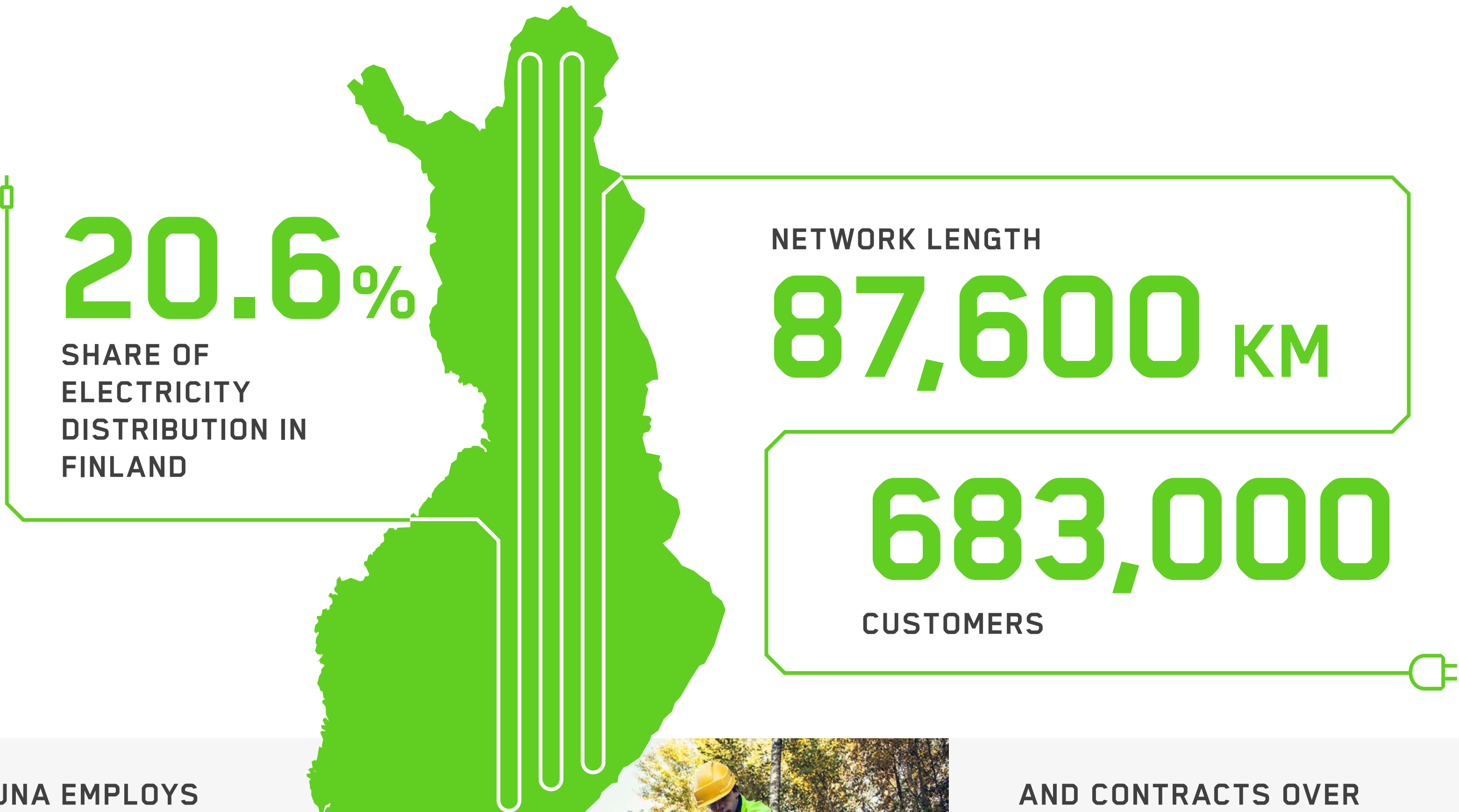


YEAR 2018

- CARUNA IN BRIEF
- FROM THE CEO
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- CARUNA'S BUSINESS AND OPERATING ENVIRONMENT

Caruna in brief

Caruna distributes electricity and maintains, repairs and builds a weatherproof electricity network for its 683,000 customers in South, Southwest and West Finland, as well as in the city of Joensuu, the sub-region of Koillismaa and Satakunta. In order to guarantee a reliable electricity supply to its customers under all circumstances, Caruna supervises its network 24/7. A weatherproof smart electricity network also provides a well-functioning energy system for the future when digital services increase, the traffic is electrified, and the consumer becomes a producer of energy.



CARUNA EMPLOYS
290
PEOPLE



AND CONTRACTS OVER
1,000
WORKERS FOR NETWORK
IMPROVEMENT PROJECTS
ALL OVER FINLAND

From the CEO

I am happy to say that our significant investments in a weather-proof network have started to pay off.

In 2018, the main topic of conversation in the energy sector and everywhere else was climate change. Storms, heavy snowfall, droughts and forest fires tested people’s patience all over the world.

Climate change also affects the electricity network business. Increasing extremes of weather have shown how dependent we all are on electricity. Electricity is a basic commodity that is essential for the operation of homes, companies, schools, hospitals and care homes. As a network service provider, Caruna has a duty to ensure an uninterrupted electricity supply even when power lines are challenged by strong winds or heavy snow.

INVESTMENTS PAY OFF

Caruna is now midway through its massive project to build a weather-proof electricity network. In the past year, our investments focused on undergrounding the medium-voltage network in sparsely populated areas. I am happy to say that our significant investments in a weather-proof network have started to pay off.

Reforming the electricity network is not only about combatting the impacts of climate change. The existing network was largely built in the 1960s and 70s and is, in any case, close to the end of its useful life. In terms of quality, the network we are building today is a giant leap from the earlier distribution network with overhead cables, as it must support the electrification of transport (electric cars), the feeding of renewable energy (such as solar and wind power) into the network and the growing number of digital services. For all these purposes, we need a stable, new-generation smart electricity network.

Finland is a land of sparse population and long distances. It therefore makes sense to also improve other infrastructure when modernising the electricity network. At the start of the year, we signed an agreement with



telecom service provider Telia for a model in which we make a 5G broadband service over a fibre-optic network accessible to our network customers while renovating our electricity network. We will first test this model in southwestern Finland, where work will begin in spring 2019.

FOCUSING ON CUSTOMERS

Digitalisation is progressing on all fronts and changing electricity use and distribution.

The customer will be an increasingly active player in a market that is based on balancing demand and production.

Caruna wants to be involved in the transformation that supports small-scale production of renewable energy, empowers customers with possibilities such as their own energy production or energy communities managed by customers and enables new service providers to enter the market.

Customers expect us to be prepared for the change in the operating environment, they want easy-to-use products and services that make their life easier and they want us to be increasingly accessible.

To develop products, services and practices, we established a new unit for development and innovation that started operations in early September.

Last year, we launched new digital services and for corporate and municipality customers we created a key account management model. Our scores in customer satisfaction improved, but there is still much work to do in this area.

ELECTRICITY DISTRIBUTION PRICES

There was a lively public debate in 2018 about electricity distribution prices and their regional differences. Distribution prices are determined by the network structure, investment needs and the number of customers, and pricing and other operations of electricity distributors are monitored by the Energy Authority.

Caruna includes two network companies operating under very different circumstances: Caruna Espoo Oy in urban areas and Caruna Oy in rural areas. Most of Caruna Espoo Oy’s electricity network, spanning 7,700 kilometres, has already been taken underground, which is why investments per customer are moderate, about EUR 120 in 2018. In contrast, Caruna Oy will have to invest much higher sums in order to meet the requirement for a weather-proof

network by the end of 2028 set out in the Finnish Electricity Market Act. This is inevitably reflected in the distribution prices. In 2018, the length of Caruna Oy’s electricity network was 79,900 kilometres and investments per customer were EUR 490. In 2018, Caruna Espoo Oy’s distribution prices were among the lowest fifth in Finland and Caruna Oy’s in top 10, depending on the user type.

I would like to express my warmest thanks to our employees, customers, network construction partners and other stakeholders for fruitful cooperation in the past year.

We will continue to work with our partner network to provide our customers with even higher-quality network services that meet the energy needs of the future.

Tomi Yli-Kyyny
CEO

Our scores in customer satisfaction improved, but there is still much work to do in this area.

Strategy

Our strategic pillars are customer-oriented and efficient core business and good corporate citizenship.

Our vision is a million content customers. We ensure reliable electricity distribution and are developing a smart energy system of the future.

Caruna is an industry forerunner in constructing, using and maintaining a smart electricity network. Climate change and digitalisation are transforming the energy industry and society as a whole. A weatherproof, intelligent grid will create the basis for an energy system of the future, in which digital services will increase, transport will be electrified and consumers will become energy producers.

Our vision is a million content customers. We want to grow and continuously improve the service provided to our customers. To this end, we have defined priorities to focus on, which we believe will take us towards our strategic goals. Our strategic pillars are customer-oriented and efficient core business and good corporate citizenship. These provide a foundation for being an industry forerunner in driving growth, developing new services and building a smart electricity network.

CUSTOMER-ORIENTED AND EFFICIENT CORE BUSINESS

Customers are at the centre of everything we do. We want to make it easy for customers to use the services related to electricity distribution, such as establishing and transferring a connection, monitoring energy consumption, following changes related to invoicing and connecting renewable energy systems to the network. We deliver the best possible customer experience by ensuring an uninterrupted electricity supply 24/7. We continuously improve the way we work by boosting our processes and enhancing the quality of our service.

In 2018, our reliability of supply rate was 99.98% and we invested 258.4 MEUR in network construction. We installed more than 6,300 kilometres



Our aim is to help find solutions that will make the energy market more customer-oriented and socially sustainable.

of cables underground to protect them from weather. We launched My Pages, a service that allows us to provide more personalised services to our customers. We revised our key account management model for corporate and municipality customers to ensure they receive even better service. We also reduced waiting times in our customer service and the processing times of customer-initiated jobs.

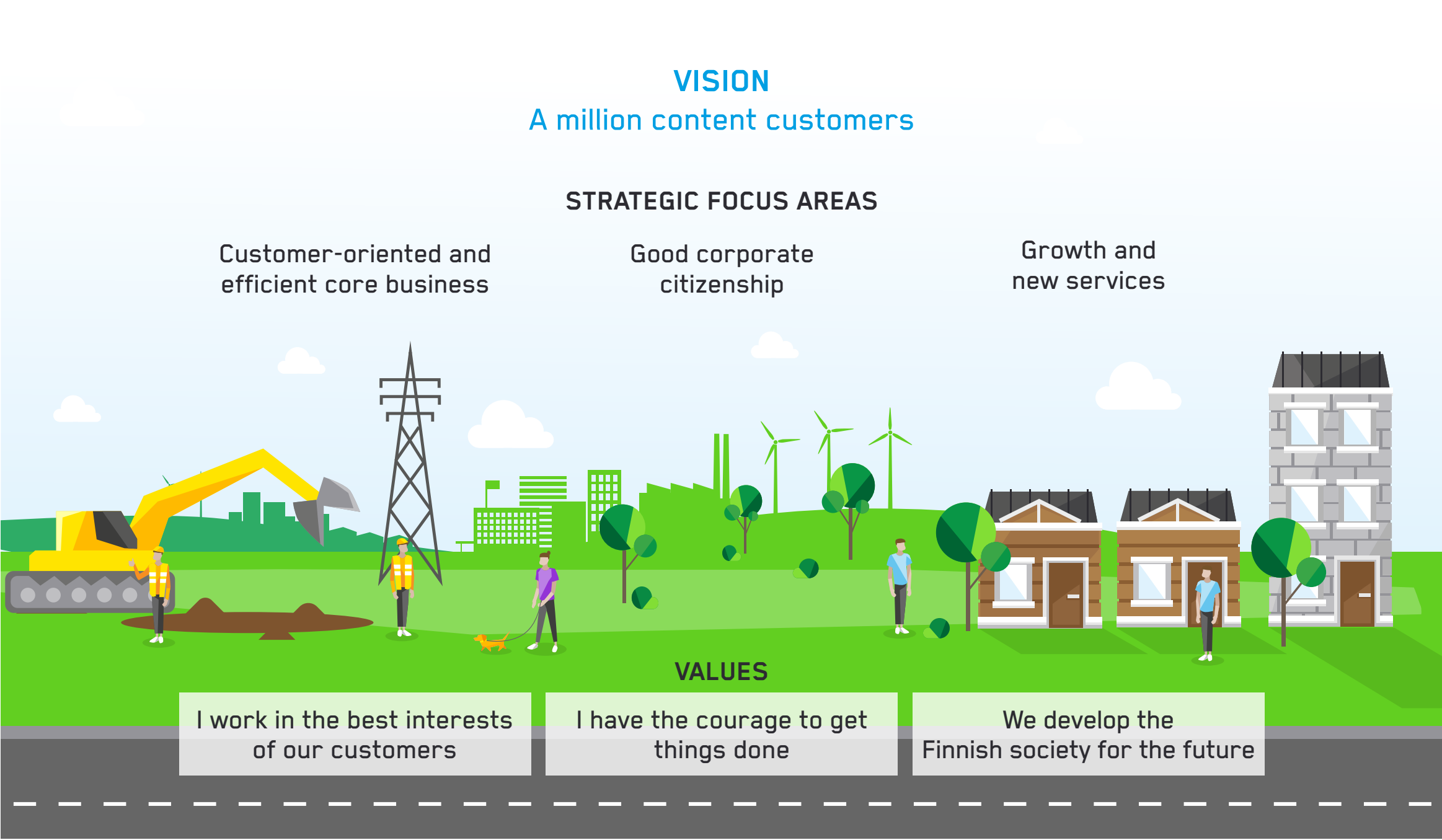
Our investments in improving stakeholder and customer satisfaction had a positive impact on our Net Promoter Score (NPS) index. We measure satisfaction monthly among private customers, small and medium-sized customer companies, large customers, landowners, municipality customers and contractors. Our NPS went up significantly from the year before, to 6.5 (in 2017, NPS was -3.9).

GOOD CORPORATE CITIZENSHIP

Good corporate citizenship means maintaining an active dialogue with our key stakeholders so that we can build trust in Caruna’s business and work together to develop electricity distribution operations of the future in Finland. We contribute actively to development work within the industry and in interest groups. We develop and implement new services and models in cooperation with our partners. We regularly meet with customers and decision-makers so as to receive feedback and discuss opportunities for development. To increase interaction, we have also organised discussions related to network construction projects or Caruna’s operations in cooperation with other organisations such as the Central Union of Agricultural Producers and Forest Owners (MTK) and the Finnish Home Owners’ Association.

The Finnish energy system is facing major changes. Our aim is to help find solutions that will make the energy market more customer-oriented and socially sustainable. In 2018, we were involved in the Smart Grid Working Group of the Ministry of Economic Affairs and Employment, which drew up guidelines for Finland’s energy transformation and smart electricity system.

We aim to promote the electrification of transport, the increase in renewable energy generation, the creation of energy communities and the engagement of customers in the energy market. Contributing to the competitiveness of the Finnish society is also important to us. That is why we are piloting new models for joint construction with municipalities and telecom service providers,



with the aim of speeding up the construction of a fibre-optic network and strengthening regional vitality.

GROWTH AND NEW SERVICES

With growth and new services, we support our core business in the changing operating environment and contribute to the development of a smart energy system in Finland. We want to grow and do our part in introducing new services in our expertise areas. We see the electricity distribution network as an excellent platform for new, green energy solutions, such as consumer demand response and energy communities.

Our aim is to support renewable energy generation and connecting it to the network.



KEY PROJECTS TO ADVANCE STRATEGIC PRIORITIES

To promote our strategy, we choose key projects every year to guide our work in the selected priority areas. These strategic key projects aim to bring about significant changes and take clear steps forward towards our vision of a million content customers.

The key projects for 2018

- improved our customer service
- increased construction safety
- reformed our key account activities
- created a new model for innovation and business development.

In 2018, we conducted several customer surveys and analysed customer data. Our aim is to understand our customers and their needs for new services even better.

During the year, we piloted new models for renewable energy generation, among other things. Between May and October, we launched a solar energy pilot in which customers received a discount on solar energy systems purchased from Caruna's solar energy partners. Our aim is to support renewable energy generation and connecting it to the network. At the end of 2018, more than 4,000 systems of solar power systems were connected to our network, showing an increase of over 75% from the previous year. Caruna is also the first electricity distributor to provide a self-sustaining Mökkivoimala solution, developed by Solarvoima Oy and intended as an alternative to a fixed connection.

In the autumn, we also held a hackathon with the theme of energy communities. As a result, we selected two new partners with whom we will continue to develop the energy community service concept and pilot it with our customers. We also participated in the Kasvu Open event in Jyväskylä, where start-ups presented their solutions for a smart electricity system and new energy services.



Caruna's business and operating environment

Uninterrupted electricity is a prerequisite for making customers' daily lives and business operations run smoothly.

Caruna's market share in electricity distribution in Finland is about 20%. Our main job is to ensure that those living in our network areas have electricity under all circumstances, 24/7. Today's society is totally dependent on electricity, and distribution companies play a key role in the areas in which they operate in providing a reliable platform that secures a comfortable life for residents and good operating conditions for businesses. This is the core of our business.

Caruna is responsible for distributing electricity to around 1.5 million Finns in southern, southwestern, western and northern Finland as well as in Joensuu. Our customers include homes, municipalities, companies as well as small and medium-sized energy producers. Our electricity network spans over 87,600 kilometres, which means you could run the cables 76 times the length of Finland. We have an extensive partner network to help us deliver our services.

We monitor the operation of our network 24/7, inform all our customers of faults and strive to repair them without delay, for which purpose we have the largest fault repair resources in Finland. We also help our customers in a variety of issues related to energy advice, connecting to the network, self-generation of energy, electricity consumption and invoicing, both over the phone and through digital channels. For businesses and electricity producers, we provide additional services for connection planning and construction. We serve municipalities and cities by assisting them with land use planning, participating in joint municipal projects and providing advice in security of supply issues.

Our main job is to ensure that those living in our network areas have electricity under all circumstances, 24/7.

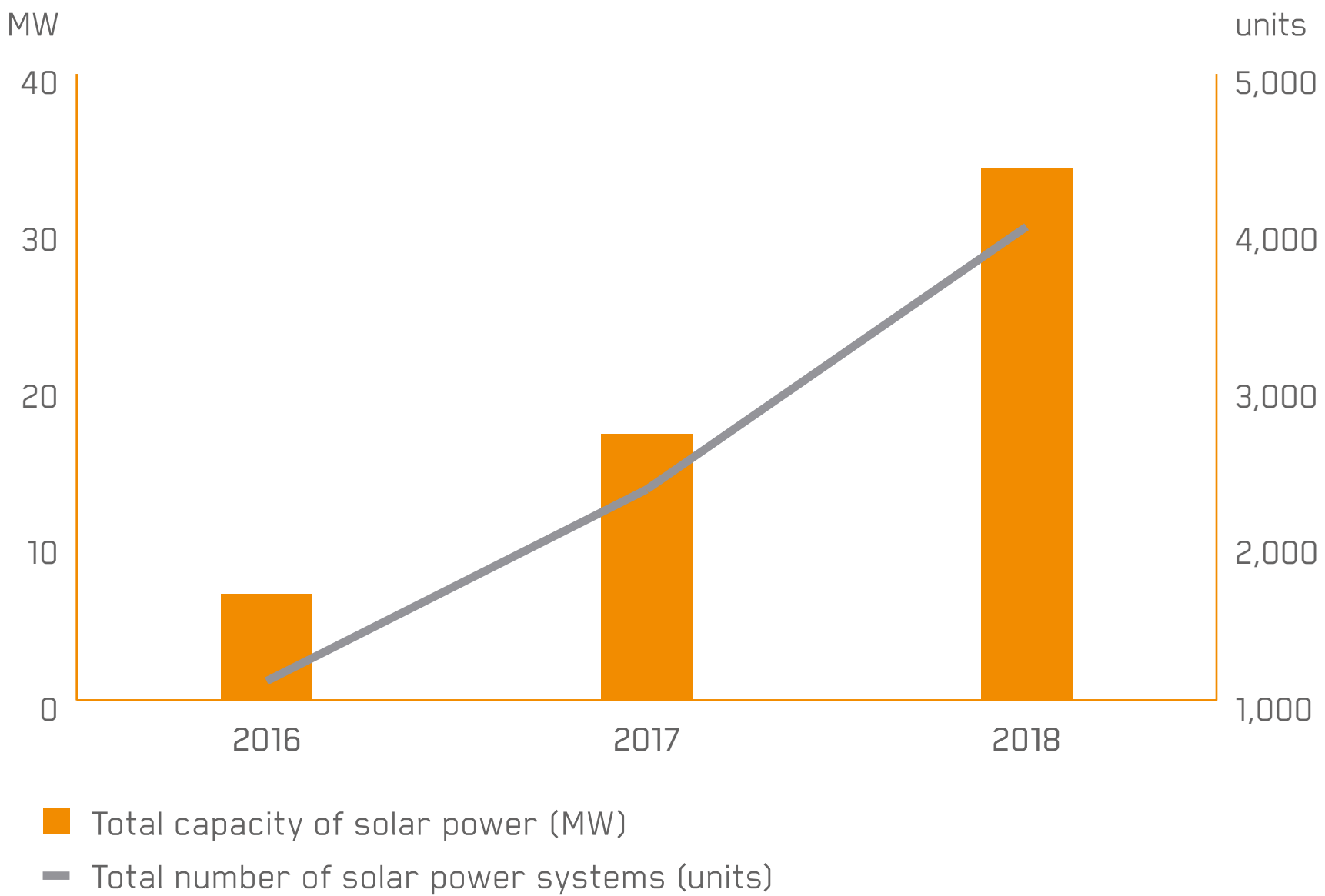
Society is increasingly dependent on electricity, and the network we are building today must be adequate in the future, as well.

CLIMATE CHANGE, URBANISATION AND DIGITALISATION ARE SHAPING THE ENERGY MARKET

The energy industry is affected by global megatrends. Climate change increases extremes of weather, and combatting it requires a marked decrease in carbon emissions. Electrifying transport and increasing renewable energy generation are important in this process. This sets higher technical requirements on the electricity network while also introducing new roles and players in the market.

Caruna is doing its part to mitigate climate change both by improving the weatherproofing of its electricity network with undergrounding and by promoting the growth of renewable energy generation in its network areas. In 2018, a total of 1,700 solar power units were connected to Caruna’s

Small-scale production of solar power in Caruna's network areas



network. Their number almost doubled compared to the end of 2017. The goal is to double the amount of renewable energy generation in 2019 as well.

Although the population, business activities and services are increasingly concentrating in cities and other growth centres, the electricity distribution network must adapt to this change and also ensure adequate living and operating conditions in sparsely populated areas.

The progress of digitalisation requires a well-designed and uninterrupted electricity supply. New digital solutions and services are all built around uninterrupted electricity. Advances in digitalisation also open up opportunities for electricity distributors to increase their efficiency and offer new services to customers. Constructing a fibre-optic network simultaneously with the undergrounding of the electricity network reduces costs and benefits both customers and society.

BUILDING A SMART ELECTRICITY NETWORK OF THE FUTURE IN FINLAND

Caruna is committed to developing Finnish society and promoting its competitiveness over the long term. We operate locally, working with local people and organisations.

Society is increasingly dependent on electricity, and the network we are building today must be adequate in the future, as well. At Caruna, we will make sure that the network’s transmission capacity meets the evolving energy system’s operational and flexibility requirements. New solutions, such as demand response, must be functional in the electricity network and the network must remain in balance when decentralised production, energy storage and energy communities increase.

We develop the automation of our electricity network and create innovations that will enable new services for our customers, such as electric vehicle charging and smart energy services. Constructing fibre-optic connections in conjunction with undergrounding is a prerequisite for the digitalisation of Finland. We have started wide cooperation with Telia with the aim of meeting this objective.



CARUNA IN SOCIETY

- VALUE CREATION
- ELECTRICITY MARKETS
- ELECTRICITY DISTRIBUTION AND CARUNA'S ECONOMIC IMPACTS
- NETWORK MAINTENANCE AND DEVELOPMENT
- RELIABILITY AND SECURITY OF SUPPLY
- CUSTOMERS
- STAKEHOLDERS
- SPONSORSHIP AND SUPPORT FOR CLUBS

We build a sustainable society

Our growing customer base and developing electricity network are key prerequisites for our ability to create value for our customers and society.

With the help of our smart, developing electricity network, we both ensure that our customers’ daily lives run smoothly and enable a transition to green energy solutions.

Our basic function is to ensure uninterrupted and weatherproof electricity distribution to our 683,000 customers every day of the year. A reliable electricity network is a central part of the security of supply of society because uninterrupted electricity distribution is essential to the Finnish society, its work places, schools and hospitals.

We build and maintain our electricity network effectively and develop it to meet the future needs of our customers and of society. The more digitalised a society is, the more important reliable electricity distribution becomes. An effective and flexible electricity distribution network can meet also the changing needs of businesses and thus boost business growth and investments in Finland.

WE COMBAT CLIMATE CHANGE AND PROMOTE DIGITALISATION

Caruna has a key role in achieving important societal goals. We curb climate change by enabling our customers’ transition to consumers and producers of renewable energy. We install electricity cables underground to protect them from extreme weather, which frees up land for carbon sinks and agriculture and forestry needs. We facilitate the digitalisation of society through joint construction of electricity and telecom networks as well as municipal infrastructure.

Our operations have a large economic footprint locally and nationally. We are a significant employer in rural areas and we have an impact on towns through tax incomes. Our investments have a positive economic impact throughout Finland.

WE CREATE VALUE THROUGH SMART GRID EXPERTISE AND CUSTOMER INSIGHT

Our growing customer base and developing electricity network are key prerequisites for our ability to create value for our customers and society. In value creation we are supported by Caruna’s strengths: high-quality supply chain management, skilled and committed personnel and responsibly managed long-term collaboration with our partners. Our financing model enables investments for developing a smart electricity network and improving the reliability of supply.

We build trust with our stakeholders and guarantee our future success through good corporate citizenship and active dialogue. Customer-driven operations include for example transparent network services and reasonable pricing. We aim to grow our tax footprint and report it openly.

Our work is guided by responsibility, and we prioritise safety and environment in everything we do. We aim to offer our employees an inspiring work place where skills and safety culture are constantly being developed.

A GROWING ROLE IN THE TRANSFORMATION OF THE ENERGY SECTOR

We are involved in the creation of a new, smart and customer-oriented energy system for Finland that will enable the electrification of transport and transition to decentralised production of renewable energy. An increasing part of energy production is shifting from national grids to electricity distribution networks, which further emphasises the role of distribution system operators in securing a reliable electricity distribution.

In the future, Caruna may, for example, function as a platform for developing new kinds of services and smart energy solutions to help the decisions of customers. This includes services such as demand response for steering electricity use from peak hours to a less expensive time and to greener production forms.

Read more under sections Strategy and Operating Environment. ➔

INPUTS

Increasing customer base and data

- ~642,000 homes, 84 municipalities, ~41,000 companies
- 1.5 million people covered by electricity distribution in Finland
- Proportion of electricity distribution in Finland 20.6%
- Customer-specific data on use of electricity

Developing and renewing electricity network

- 87,600 km electricity network, value EUR 2.5 bn
- 3,000 remote-controlled sites
- 680,000 smart electricity meters
- 52% cabled network
- Amount of solar power production 34 MW

Skilled and committed experts

- 290 Caruna employees, 1,000 contractor employees
- Employee commitment index 72%
- Skilled supply chain management

Strong cooperation network

- ~500 contractors
- ~100 suppliers of services and network materials
- Collaboration with authorities
- A functional transmission grid

Natural resources enabling operation

- Used land areas 20,200 ha
- Electricity network metals e.g. aluminium, copper

Financing model enabling investment

- Own capital EUR -112.4 million
- Interest bearing debt EUR 3,327.3 million
- Balance sheet EUR 4,185.0 million
- Credit rating BBB+ (S&P)

CARUNA'S BUSINESS MODEL

UNINTERRUPTED AND SECURE NETWORK SERVICE 24/7

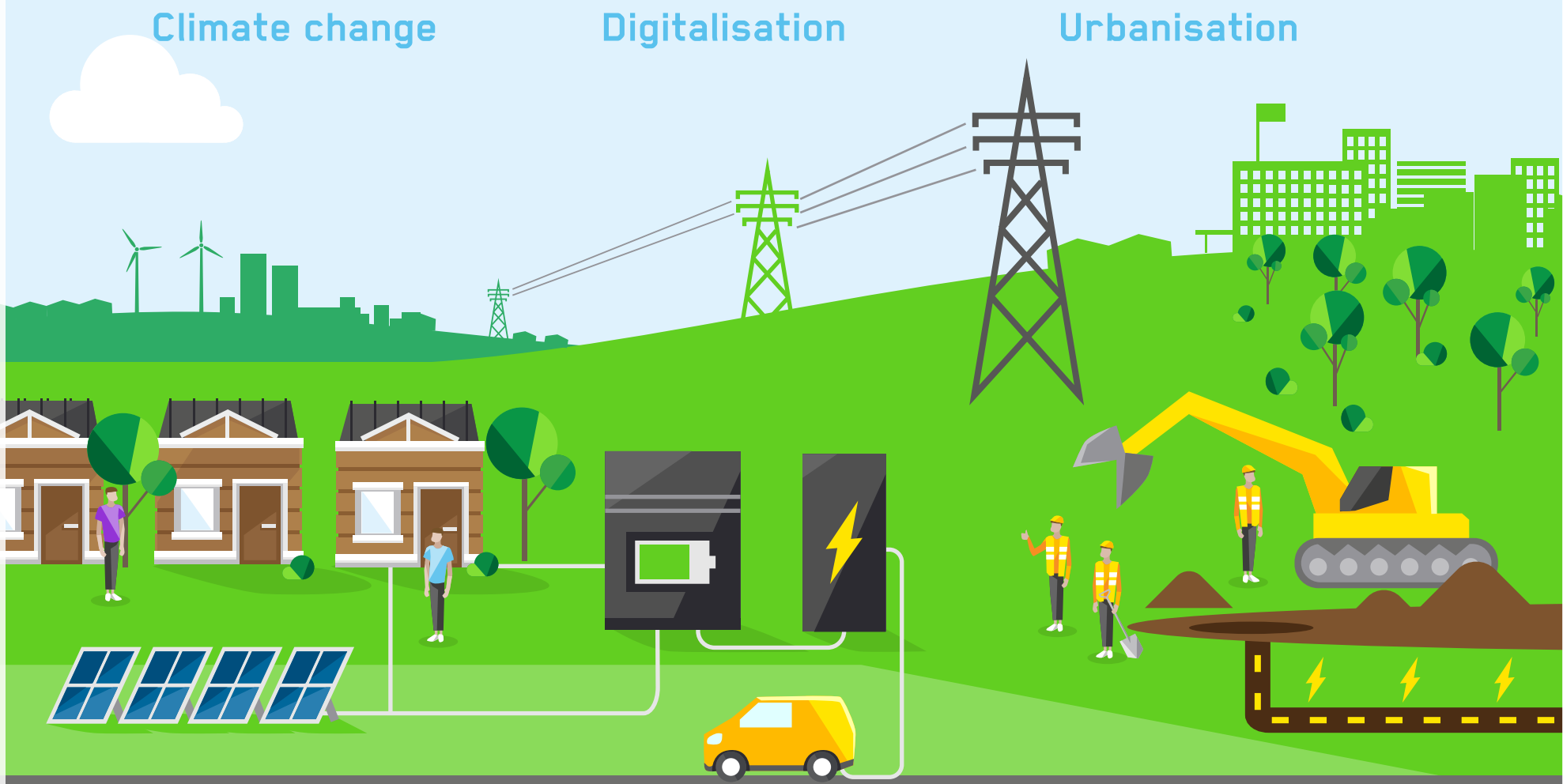
- Effective construction and operation of electricity networks
- Developing future infrastructures

SMART ENERGY SOLUTIONS AND SERVICES

- Digital services
- Advice and engagement of customers in the energy market
- Ensuring cyber security
- Market place services

CUSTOMER-ORIENTED ENERGY SYSTEM OF THE FUTURE

- Decentralised energy production
- Electrification of transport
- Energy communities
- Smart homes
- Electricity storages



IMPACTS

ON STAKEHOLDERS

Helping daily lives run smoothly

- Reliability of supply rate 99.98%
- Customer satisfaction 6.5 (NPS)
- Own energy production
- Transparent and reasonable pricing

Competitiveness of cities and municipalities

- An electricity network to meet changing energy needs
- Enabling the business operations of companies

Safe and developing working environment

- Injury frequency of supply chain 4.7 (LWIF)
- Constant development of skills and safety culture
- Over 1,100 Caruna Card course attendees

ON FINNISH SOCIETY

Functioning Finnish society

- Reducing and shortening power cuts
- Joint construction of electricity and telecom networks and municipal infrastructure
- A significant employer in rural areas
- Ensuring security of supply

Controlling climate and environmental impacts

- Enabling the generation of renewable energy
- Protecting biodiversity
- Releasing land for carbon sinks and agriculture and forestry purposes 1,700 ha
- Relative energy loss of electricity network 3.1%

- Recovery rate of dismantled materials over 85%
- Removal of pole-mounted transformers from groundwater areas 450 pcs
- 3 oil spills (≥100 kg)

Financial footprint

- Net sales EUR 454.1 million
- Dividend distribution – not paid
- Direct jobs 290, indirect jobs 5,000
- Paid wages, salaries and social services EUR 22.9 million
- Purchases EUR 150.9 million
- Corporate tax EUR 10.3 million
- Electricity and value added taxes paid to tax authorities EUR 258.3 million
- Investments in electricity networks of the future EUR 258.4 million

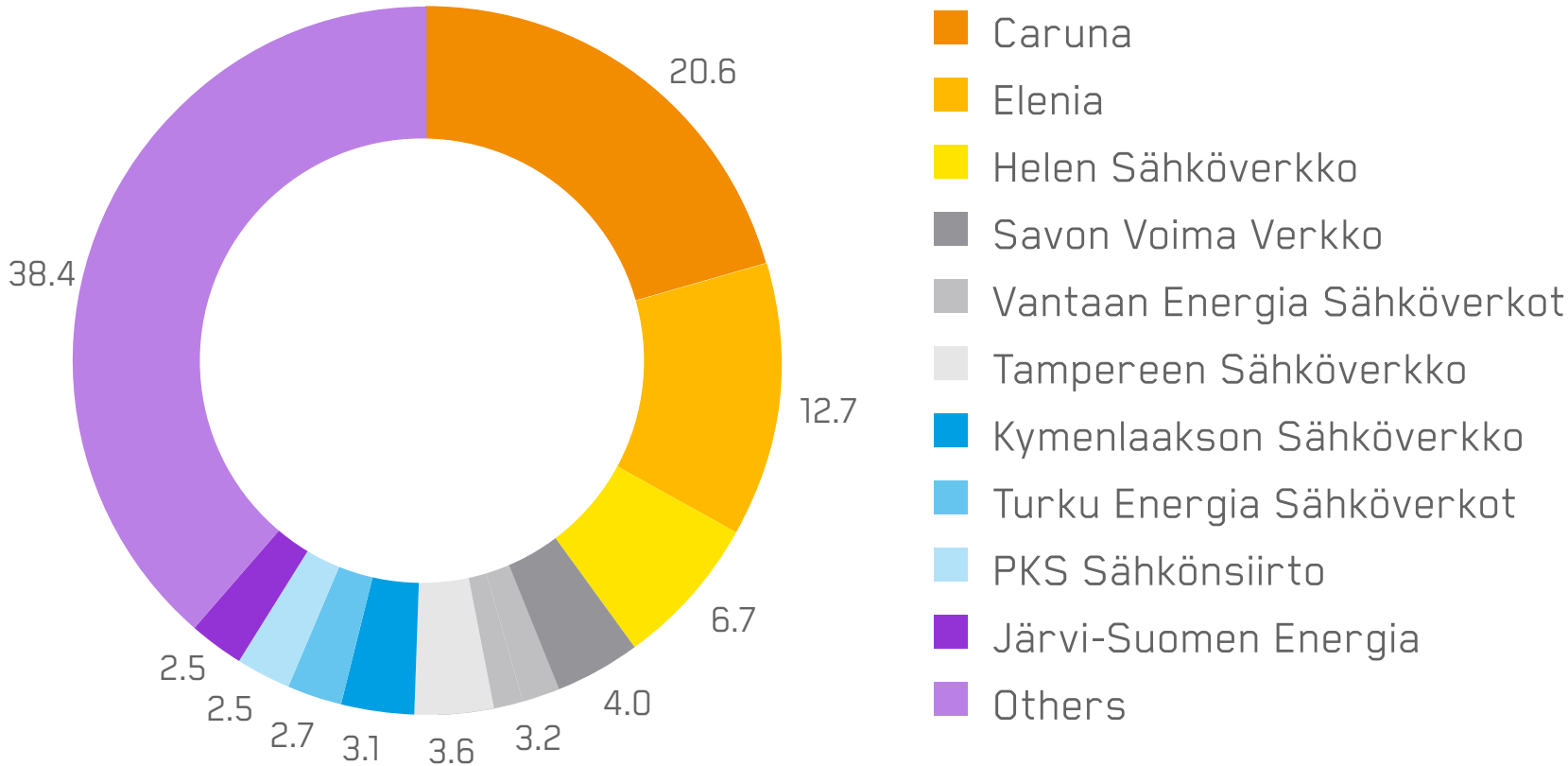
Electricity markets

The purpose of the regulations is to guarantee end-users high-quality electricity distribution at a reasonable price and under appropriate and equal service principles.

Electricity distribution is a strictly regulated business. Caruna’s task is to offer its customers network connection and electricity distribution under equal and reasonable conditions.

In Finland, all electricity distribution business is strictly regulated and monitored and governed by the Electricity Market Act. The purpose of the regulations is to guarantee end-users high-quality electricity distribution at a reasonable price and under appropriate and equal service principles. The right to practise electricity distribution operations is based on network licences granted by the Finnish Energy Authority. Only one licence may be granted for each geographical area. In Finland, there are currently 77 holders of network licences, i.e. electricity distribution companies. While the companies vary in size, network area and business practices, they are all governed by the same regulations.

Share of Caruna and other companies of the electricity supplied through the distribution network (%)



The network asset value and, consequently, the electricity distribution price are affected mostly by the network’s size (length in kilometres) and age.

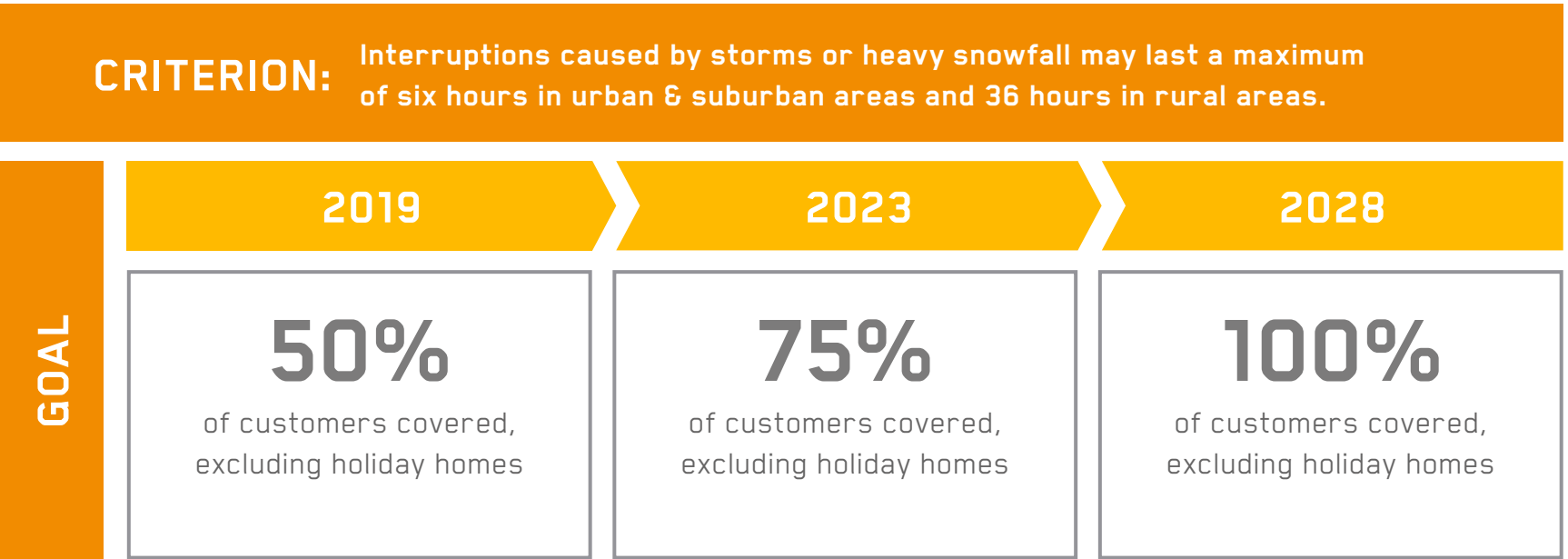
Caruna Oy and Caruna Espoo Oy key indicators

Company	Turnover (EUR million)	Investments (EUR million)	Customer volume*	Network kilometres	Cabling rate
Caruna Oy	369.2	232.5	471,000	79,900	49%
Caruna Espoo Oy	85.0	26.0	212,000	7,700	75%

*Rounded to the nearest thousand.

According to the regulations, distribution network operators, including Caruna, have a responsibility to use, develop and maintain their electricity network plat-forms in accordance with the needs of the electricity market and to thus help ensure the functionality of the electricity system. The network operator must offer a network connection and electricity distribution to all willing customers within the network area under equal and reasonable conditions. In addition, the distribution network operator is required to share any necessary information (on customers or their network) related to the network operations with such other market parties that need it, subject, however, to the Finnish Personal Data Act and the restrictions set by consumer and privacy protection.

Goals for the security of supply defined in the Electricity Market Act



The Electricity Market Act was renewed in 2013 to improve the reliability of supply of electricity distribution. The Reliability of Supply Act stipulates that power cuts caused by storm or snow loads must not last more than 6 hours in urban areas and 36 hours in rural areas. The improvements to meet with the legal requirements of reliability of supply must be completed by the end of 2028. In 2017, a cap was set in the Electricity Market Act for increases of electricity distribution prices. Distribution network operators may not increase their distribution prices by more than 15% of the payments collected during the preceding 12 months.

ELECTRICITY DISTRIBUTION PRICES MONITORED BY THE FINNISH ENERGY AUTHORITY; THE SAME RULES APPLY TO ALL COMPANIES

The Energy Authority monitors the reasonable pricing of electricity distribu-tion companies in four-year regulatory periods. A company-specific permit-ted net sales limit regulates the revenue a company may legally invoice to its customers during the four-year period. If the company invoices more than permitted during the period, it accrues over-income, which the company is obliged to return to its customers during the following four-year period in the form of discounts. In case of under-income, the company may invoice it to its customers during the following four years. The Energy Authority publishes annual calculations for monitoring the company-specific differences between permitted and invoiced net sales.

Caruna Oy and Caruna Espoo Oy customer facts

	Caruna Oy	Caruna Espoo Oy
Network length (m) / customer	170	36
Cabling rate (%)	49	75
Electricity distribution price K1* (cent/kWh)	14.5	9.47
Investments per customer (EUR)	490	120

*K1 = Apartment, no electric sauna stove, main fuse 1x25 A, electricity usage 2,000 kWh/year

The value of the network is significantly increased by cabling for improving weather-proofness and other investments for enabling the smart networks of the future.

Reasonable pricing is based primarily on the revenue defined for the electricity distribution company’s network asset value and the expenses caused by company operations. The network asset value and, consequently, the electricity distribution price are affected mostly by the network’s size (length in kilometres) and age. The value of the network is significantly increased by cabling for improving weatherproofness and other investments for enabling the smart networks of the future.

Since reasonable revenue is determined based on the amount of network assets (kilometres and components) and not on the number of customers, companies with the most network metres per customer usually also have higher prices than companies with many customers to share the expenses caused by the network assets.

Caruna Group includes two network companies: Caruna Espoo Oy and Caruna Oy. Caruna Espoo Oy is an urban company with a high cabling rate and a high number of customers to share the expenses per metre of network. Caruna Espoo Oy is one of Finland’s most affordable electricity companies. Meanwhile, Caruna Oy operates in rural areas where the number of metres of network per customer is high, which is also reflected in higher prices.



Electricity distribution and Caruna's economic impacts

It is our task to ensure reliable electricity distribution at all times everywhere. Caruna is a significant economic operator and employer in Finland.

With our reliable electricity network, we make sure that our customers have electricity every day of the year. In 2018, we spent EUR 258.4 million to renovate and build our electricity network. We cabled more than 6,300 kilometres of network underground to protect it from weather. Our reliability of supply rate was 99.98%.

ECONOMIC IMPACTS

Our operations have direct and indirect economic impacts both locally and nationally. The impacts are visible especially in the regions where we operate, but also across Finland through investments. We make all our investments in Finland. Our regional economic impacts are seen in job creation and tax revenues, among other things.

Employment

Caruna has 290 employees and in 2018, and estimated 500 contractors were directly employed in our projects around Finland. Our projects provided employment indirectly to approximately 1,000 persons. The domestic content rate of these jobs has been estimated at 100%.

Cash flows

The most significant direct cash flows in our operations stem from our customers' electricity distribution fees, purchases from service and goods suppliers, contributions to lenders, electricity network renewal and maintenance investments, personnel wages and tax-like payments.

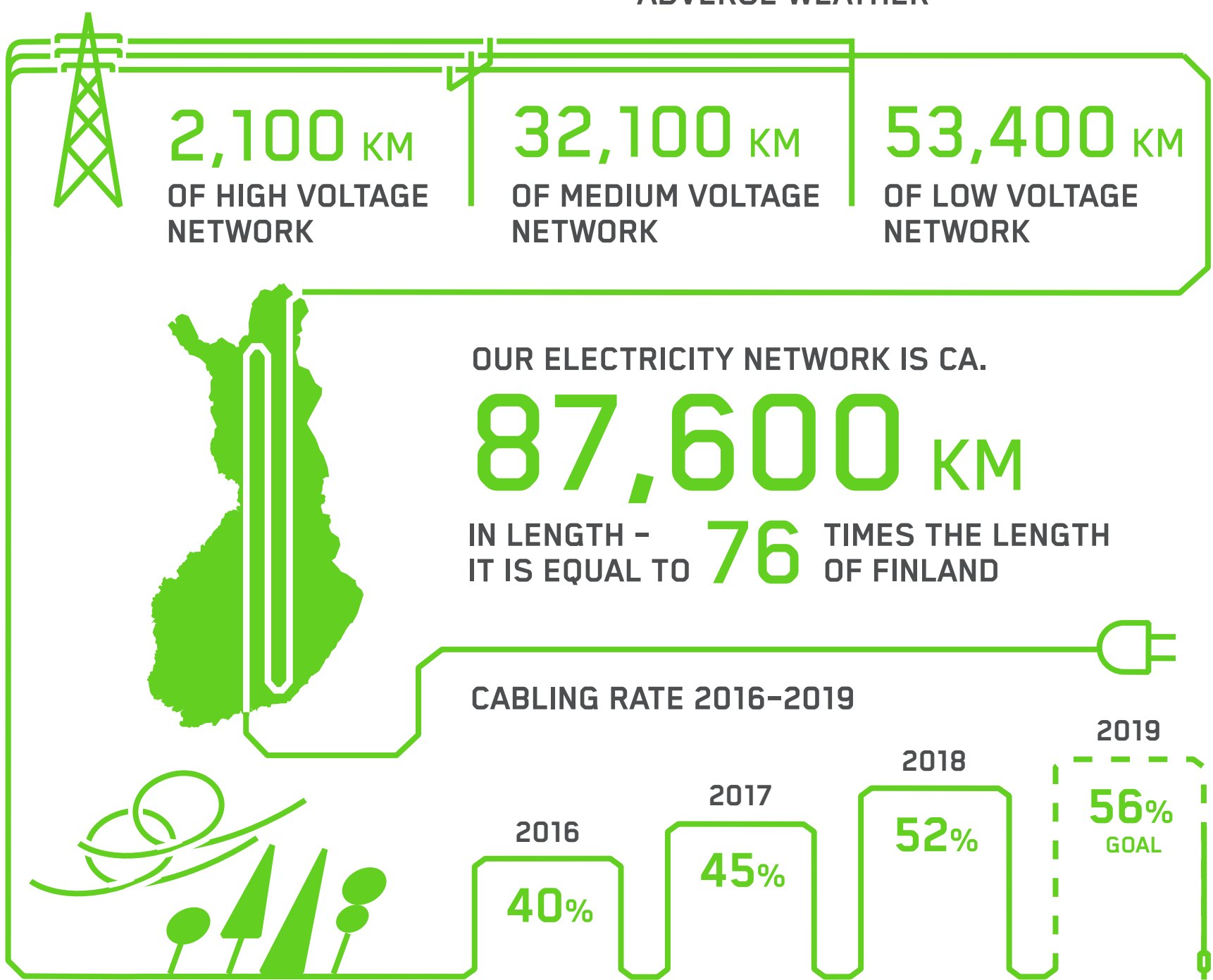
RELIABILITY OF ELECTRICAL SUPPLY

99.98%

IN 2018 WE INSTALLED

6,300 KM

OF CABLES UNDERGROUND TO PROTECT OUR NETWORK AGAINST ADVERSE WEATHER



In 2018,
we spent EUR
258.4
million to renovate
and build our
electricity network.

Electricity Network Key Indicators

	2018	2017	2016
Length of electricity network in total (km)	87,600	85,200	82,150
Length of low-voltage network	53,400	52,400	51,700
Length of medium-voltage network	32,100	30,700	28,400
Length of high-voltage network	2,100	2,100	2,050
Number of secondary substations	31,300	30,600	28,600
Number of primary substations	190	207	190
Underground cable network laid during the year (km)	6,300	6,200	4,600
Level of cabling in total (%)	52	45	40
Level of cabling in the low-voltage network	51	48	45
Level of cabling in the medium-voltage network	56	44	33
Investments in the electricity network* (MEUR)	258.4	276.5	238

*The investment figure for 2017 is not completely comparable to earlier years due to different calculation methods.

Electricity Network Key Indicators by Network Area

	Caruna Oy	Caruna Espoo Oy
Length of electricity network	79,900 km	7,700 km
Level of cabling in the low-voltage network	48%	74%
Level of cabling in the medium-voltage network	55%	82%



Our regional economic impacts are seen in job creation and tax revenues, among other things.

Caruna’s net sales

In 2018, Caruna’s net sales amounted to EUR 454.1 million. The net sales increased from the previous year. The number of customers grew by 11,000 and was over 680,000 at the end of 2018.

Payments to suppliers EUR 136.5 million

The number includes procured materials and services, costs incurred from the loss of electricity, Fingrid’s national grid fees, fault repair and maintenance costs and other smaller items of expenditure.

Payments to personnel EUR 22.9 million

We paid more than EUR 22.9 million to our personnel in salaries, pension security contributions and social security contributions.

Contributions to lenders and shareholders EUR 139.9 million

Electricity distribution is a highly capital-intensive sector. Consequently, in relation to the net sales, the level of interest paid is higher than the average observed in other sectors. In compensation for the use of capital, we paid EUR 60.1 million in interests to the first-in-line creditors, and EUR 79.8 million in interest for the shareholder loan that owners have invested in the company.

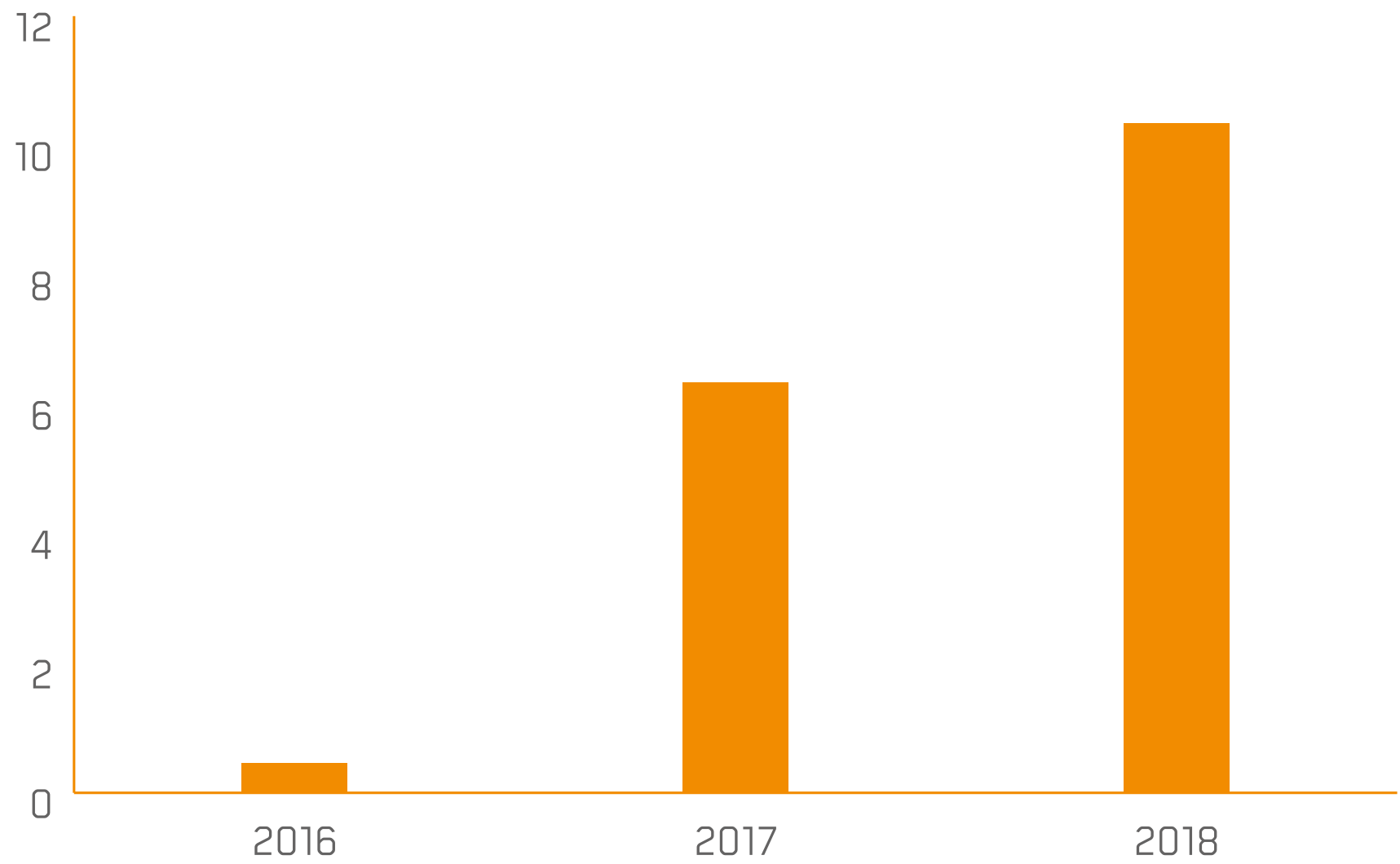
A growing tax footprint

Caruna is a Finnish company that pays all its taxes to Finland. We observe the Finnish legislation in the payment, collection, accounting and reporting of our taxes.

The term ‘tax footprint’ refers to the income society receives from a company’s corporate taxes and tax-like payments. In addition to direct and indirect taxes, Caruna’s tax footprint includes reports on tax withheld from employee wages and social security contributions. The summary includes the taxes and tax-like payments that Caruna is legally obliged to pay or collect from customers. The summary does not include taxes for which Caruna does not have a legal reporting obligation.

Read more about Caruna’s tax footprint in the tables on the next page.

Development of corporate tax, MEUR



CORPORATE TAXES PAID

EUR **10.3** MILLION

CORPORATION TAXES INCREASED BY 63% DURING 2018.

INVESTMENTS

EUR **258.4** MILLION

TAXES COLLECTED

EUR **263.2** MILLION

THIS AMOUNT COVERS THE ELECTRICITY TAX COLLECTED FROM OUR CUSTOMERS AND ACCOUNTED TO THE GOVERNMENT, VALUE ADDED TAX AND WITHHELD TAXES.

Caruna's tax footprint (thousand euros)

	2018	2017	2016
Tax due			
Income tax	10,349	6,338	456
Unemployment insurance payments	772	671	471
Social security contributions	143	194	367
Tax on property	223	212	213
Transfer tax	18	2	28
Tax due in total	11,506	7,417	1,535
Collected and accounted tax			
Value-added tax (net accounted)	59,105	51,804	54,866
Electricity tax	199,236	202,192	189,137
Withheld tax	4,883	5,315	5,049
Accounted tax in total	263,224	259,311	249,052

Direct economic value generated and distributed (thousand euros)

	2018	2017	2016
Income from customers			
Net sales	454,069	426,427	384,028
Other operating income	7,383	6,013	7,626
Fair value adjustments	-899	-1,112	-2,987
Income from customers in total	460,552	431,328	388,667
Payments to suppliers			
Acquired materials and services	92,496	88,116	81,851
Other expenses	58,521	54,147	55,679
Tax on property	-223	-212	-213
Donations and sponsoring	-211	-192	-387
Payments to suppliers in total	150,583	141,859	136,930
Contributions to personnel			
Wages, remuneration and social security costs	22,949	20,362	21,806
Contributions to personnel in total	22,949	20,362	21,806
Contributions to lenders and shareholders			
Financing costs to shareholders	79,810	80,462	81,135
Financing costs to others	53,939	48,720	91,848
Contributions to lenders and shareholders in total	133,749	129,182	172,983
Support in public interest and taxes			
Income tax from the financial period	10,349	6,338	456
Tax on property	223	212	184
Donations and sponsoring	211	192	387
Support in public interest and taxes in total	10,783	6,742	1,027
Economic value generated	142,488	133,183	51,693

Network maintenance and development

Our goal is to focus and implement network development and renovation operations so that the investments benefit our customers as much as possible.

Caruna has 87,600 kilometres of electricity network. We plan, build and maintain the network to meet the current and future needs of our customers and society. We monitor our electricity network 24/7 and our contractors are on stand-by in our network areas, ready to carry out maintenance and repairs in the event of faults.

GOALS FOR THE SECURITY OF SUPPLY

Our network improvement programme is guided, in addition to the target level of the security of supply outlined in the legislation, by the electricity network’s age profile and growth, mainly achieved through new network connections and advancements in the society’s basic infrastructure. The network constructed now must be able to serve the Finnish society for the next 40 to 50 years and reflect the relevant changes in the consumption and production of energy, such as the electrification of traffic and small-scale production of electricity.

MAIN DRIVERS FOR NETWORK INVESTMENTS

Our goal is to focus and implement network development and renovation operations so that the investments benefit our customers as much as possible. The actions will first be targeted into areas with the greatest customer density and quantity of distributed electricity.

Besides investments in the development and renovation of the network, we invest continuously in network maintenance actions, such as network inspections, tree clearances as well as small network repair and maintenance operations.

Caruna and Solarvoima electrify summer cottages

Caruna and Solarvoima bring electricity to summer cottages. There are about 400,000 summer cottages in Finland that do not have electricity. Distances tend to be long in Finland, so getting a fixed electricity connection is often expensive. Caruna is the first electricity distributor to provide a self-sustaining Mökkivoimala solution as an alternative to a fixed connection.



Caruna’s Electrical Networks Unit is responsible for the development, maintenance and operations of the electricity network.

ELECTRICITY NETWORK DEVELOPMENT OPERATIONS IN 2018

In 2018, we continued to make extensive investments into improving the reliability of supply in all our network areas. Renovation of medium-voltage overhead line networks remained the main focus of our network improvement projects.

In total, we constructed more than 6,300 kilometres of small and medium-voltage underground cable network. The cabling level of the entire electricity network was 52% by the end of 2018.

In total, we constructed more than **6,300** kilometres of small and medium-voltage underground cable network.

Factors guiding our investments

	RELIABILITY OF SUPPLY	AGEING NETWORK	GROWTH
GUIDING FACTORS	<ul style="list-style-type: none">➤ Key expectations for the reliability of supply of electricity by the society and customers➤ Target levels are defined in the updated Electricity Market Act	<ul style="list-style-type: none">➤ The majority of our medium voltage grid built in the 1970s-1980s➤ About to reach the age for renovations for the first time	<ul style="list-style-type: none">➤ New connections➤ New town plan areas➤ New industrial connections
ACTIONS	<ul style="list-style-type: none">➤ Main focus on the improvement of the network’s weather resistance<ul style="list-style-type: none">• More underground cabling• More network automation• Clearance of power line corridors	<ul style="list-style-type: none">➤ Main focus is on replacing the oldest network elements approaching the end of their technical lifecycle<ul style="list-style-type: none">• Overhead lines of medium- and low-voltage network• Lines and primary substations of high-voltage network• Secondary substations and cable cabinets of cable network	<ul style="list-style-type: none">➤ Connections for new customers will be implemented with customers’ current and future needs in mind. In addition to reliable electricity distribution, the customers’ connections enable small-scale production of electricity and serve the needs of the growing electric transportation.
	REPLACEMENT INVESTMENTS		GROWTH INVESTMENTS

Reliability and security of supply

Network improvements carried out from 2014 to 2018 decreased the impact of weather on electricity supply.

Reliability of supply is a prerequisite for reliable electricity distribution. In 2018, our reliability of supply rate remained at 99.98%. We form an important part of Finnish society’s critical infrastructure and contribute to maintaining Finland’s security of supply.

RELIABILITY OF SUPPLY IN 2018

In northern Finland, our electricity network was tested by numerous interruptions at the beginning of the year, caused by heavy snow on trees and power lines. It took us several weeks to repair the faults, locate potential hazards along the network from helicopters and clear trees and remove snow from power lines.

At midsummer, on 22 June, strong gusts of wind blew in western Finland and Uusimaa, leaving almost 5,000 customers without electricity. In September, two storms, dubbed Mauri and Kuisma, resulted in power cuts in different parts of our network areas. Mauri cut power to just under 3,000 customers and Kuisma to 6,500 customers. In our network areas, September has previously been less windy than in 2018. Network improvements carried out from 2014 to 2018 decreased the impact of weather on electricity supply. Our reliability of supply rate remained unchanged in 2018, standing at 99.98%.

In 2018, the figure reflecting the frequency of supply interruptions, SAIFI (System Average Interruption Frequency Index), was 1.9. This means that, on average, customers were subjected to fewer than two supply interruptions during the year. The figure reflecting the total duration of power cuts per customer, SAIDI (System Average Interruption Duration Index), was 103 minutes during the year.



We have prepared for power shortages by developing our systems, specifying our customer data further and training our employees.

The key figures also include planned supply interruptions. The number of planned interruptions has increased because Caruna is running a major electricity network improvement programme and the commissioning of new network sections results in planned interruptions to customers. We always inform our customers of interruptions in advance.

Reliability of Supply Key Indicators

	2018	2017	2016
System Average Interruption Frequency Index (SAIFI) (no of incidents)	1.9	1.8	1.7
System Average Interruption Duration Index (SAIDI) (min)	103	123	95
Damage caused by interruptions (MEUR)	24.2	27.9	22.6
Rate of the reliability of electricity supply (%)	99.98	99.98	99.98

PREPAREDNESS AND SECURITY OF SUPPLY ACTIONS IN 2018

In 2018, we participated in one joint exercise organised by the authorities. We also held three major disturbance exercises during the year and trained our major disturbance organisation.

Caruna was represented at the meetings of the National Emergency Supply Agency’s Power Supply Pool and those of regional preparedness committees (ELVAR) as well as in regional defence courses (basic, advanced and special courses) organised by the Regional Offices of the Finnish Defence Forces and Regional State Administrative Agencies.

The problems caused by heavy snow in the Kainuu region at the beginning of the year showed how vulnerable our society is to disturbances and how important neighbourly help is. We prepare for such situations by maintaining continuous repair preparedness and collaborating with our stakeholders. We have agreed on collaboration and procedures in the event of disturbances with, for example, the rescue services of West Uusimaa, Southwest Finland, Tampere Region and Lapland.



In July, both of the nuclear power plant units in Olkiluoto were disconnected from the grid due to a failure at transmission system operator Fingrid’s substation. There was a risk of power shortage, in which case there would not have been enough electricity for all customers. We were ready to restrict electricity consumption in our network areas. Fortunately, no shortage occurred and restrictions were not needed. We have prepared for power shortages by developing our systems, specifying our customer data further and training our employees. We have also agreed on collaboration procedures with Fingrid.

PREPARING FOR EXCEPTIONAL SITUATIONS

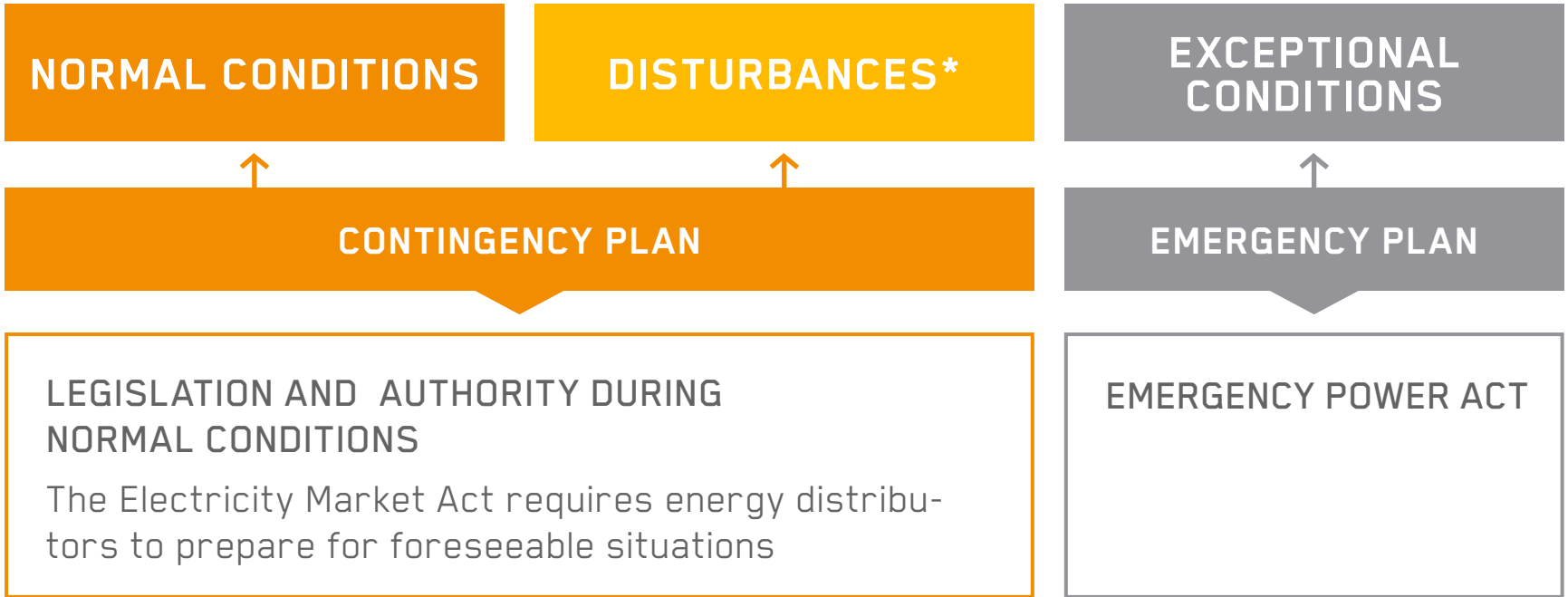
Society is more dependent than ever on a reliable supply of electricity under all conditions, which is why we strive to ensure that there are as few interruptions as possible. If the supply of electricity is interrupted, we, as the operator of the distribution network, have a duty to inform our customers and the rescue services without delay. We must also provide customers and

the authorities with an estimate of the extent and duration of the interruption. The authorities receive the information through Krivat, a portal used by the authorities and critical infrastructure organisations.

The outage map on our website offers our customers up-to-date information about supply interruptions and estimated repair times. The number of customers affected by interruptions in Caruna’s electricity supply is also shown in the electricity outages map service on the Finnish Energy website. Our customers can subscribe to a free alert service, Caruna Sähkövahti, which sends outage alerts directly to customers’ mobile phones or email, whichever they prefer. We also advise our customers on how to prepare for supply interruptions.

Caruna has drawn up contingency and emergency plans for network interruptions and exceptional circumstances, as required by the Electricity Market Act. The contingency plan covers electricity network disturbances under normal conditions, such as power cuts caused by natural phenomena. The emergency plan describes how to ensure the continuity of electricity supply under emergency law conditions in case of serious external or internal threats. We refine these plans and our practices on the basis of experience gained from disturbances and failures.

Preparedness for exceptional circumstances



*Local, regional, and national disturbances, e.g. major accidents



We take part in contingency and emergency organisation activities organised by the authorities in order to ensure collaboration and preparedness in all situations.

The contingency and emergency plans required by the Electricity Market Act must be updated regularly. We review our plans four times a year to ensure an appropriate level of continuity management. Our Network Operation unit is in charge of the contingency and emergency plans. The Head of Security ensures the plans are up to date and appropriate reports are submitted to the authorities.

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Caruna is a critical company for the security of supply. Security of supply means the ability to handle disturbances and crisis situations with a minimum amount of special arrangements and damage. We are prepared to maintain our ability to supply electricity on the current level of reliability of supply even during a longer crisis. By investing in the reliability of our electricity network, we can ensure the security and continuity of supply under all circumstances.



Customers

Customers are at the centre of everything we do. We deliver the best customer experience by ensuring an uninterrupted electricity supply. In 2018, we invested in the customer experience by launching the My Pages service.

The highlights of Caruna's customer activities in 2018 included collaborating with customers, developing service channels and using robotics in customer service.

OUR CUSTOMER BASE

Our electricity network was joined by 11,000 new customers during 2018. Of those, 2,300 were connections to new buildings. One reason for this is the rapid growth and development of urban centres.

In total, Caruna has more than 680,000 customers, divided between Caruna Oy's and Caruna Espoo Oy's network areas. Caruna Oy is responsible for electricity distribution to 471,000 households and businesses in the regions of Uusimaa, Häme, Southwest Finland, Satakunta, South Ostrobothnia, Ostrobothnia, North Ostrobothnia and Lapland, where the network is mainly located in the countryside and overhead cables are used. Caruna Espoo Oy distributes electricity to 212,000 households and businesses in the urban areas of Espoo, Kauniainen, Kirkkonummi and Joensuu.

CUSTOMER EXPECTATIONS AND SERVING CUSTOMERS

The customer surveys conducted in 2018 show that our customers have the following expectations for Caruna: reliable electricity distribution, reasonable pricing and ease in doing business with us. When customers need service or information, they expect hassle-free service, but they also want us to

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DEVELOPING SERVICES FOR CUSTOMER GROUPS

We have identified the following seven customer groups, and we will continue to develop their services and service channels in 2019:



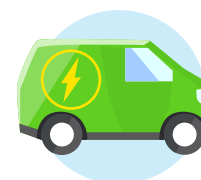
1. Personal customers



5. Energy advice actors



2. SMEs



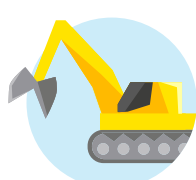
6. Electricity supplier



3. Electricity contractors



7. Landowners

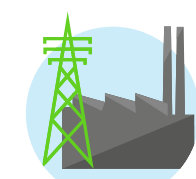


4. Professional builders

In addition, Caruna's key account managers are responsible for managing our key accounts, which are categorised into the following groups:



1. Municipalities and cities



2. Large customers (large power plants, industrial plants and network companies)



3. Mid-sized customers (small-scale industry, food factories and greenhouses)

In 2018, we added new service description pages on our website to help Caruna's customer groups find the services designed for them.



take responsibility and provide solutions. That is why customer service must work without a hitch. We want to deliver on our customer promise of making customers' lives run smoothly, every single day.

In 2018, we completed our customer experience improvement project, which started in 2017. As a result of this project, both customer satisfaction and Caruna's Net Promoter Score improved. In 2018, we engaged our customers in product and service development. Caruna's employees also became familiar with service co-design with customers.

We are putting resources to customer service availability and personal service. Our new digital service channels – chat and social media – have proved useful and popular. Thanks to our social media customer service team, set up in 2016, we have been able to meet the expectations for rapid response to messages in these channels.

The structure of the customer service organisation was also fine-tuned in early September, when we established a new team dedicated to business customer's service. The tasks of key account managers and the role of the large accounts team were further specified at joint workshops. Last year, two key account managers began their work at the Customer Relations unit, acting as the face of Caruna towards municipalities and cities.

We will release the mobile app and other services that will make our customers' daily lives easier in spring 2019. Over the next year, we will put a lot of effort and resources into digitalisation and the analysis of customer data and its use in the development of our business and customer service.

WORKING WITH CUSTOMERS

In 2018, we focused on customer collaboration and face-to-face meetings. We invited our customers to workshops, in which we developed our services and products. Listening to customers is a crucial part of our development activities.

We met customers in our own discussion sessions related to network construction, at events organised by the Finnish Home Owners' Association and at trade fairs across Finland. We participated in the OKRA2018 farm fair and the OMAKOTI trade fair. As part of the solar power campaign, we talked with our customers at various summer events.

We want to deliver on our customer promise of making customers' lives run smoothly, every single day.

In 2018, we focused on customer collaboration and face-to-face meetings.

CUSTOMER SATISFACTION

We measure customer satisfaction regularly using the NPS (Net Promoter Score) index, which is one of our key indicators. Besides NPS, our customer satisfaction surveys gauge the ease of our service and our service attitude. We conduct surveys via text message, email or chat, depending on how the customer has contacted us.

Customer feedback can be viewed by customer group and divided into the following five stages of the customer journey (on a scale of 1 to 5): the

THE CUSTOMER EXPERIENCE IMPROVEMENT PROJECT ENHANCED OUR CUSTOMER SERVICE IN 2018 IN SEVERAL AREAS:

- We improved our customer communications in network construction projects, during electricity supply interruptions and in landowner collaboration
- We launched My Pages, a digital service channel for both personal customers and municipality and telecom company customers
- We revised our website to increase customer-orientation and improved our energy reporting service
- We began to use robotics for identifying customers, directing them to relevant specialists, speeding up internal processes and handling manual routine tasks
- We extended the opening hours of our personal customer telephone service to 6 pm
- We started planning a Caruna mobile app and order follow-up service

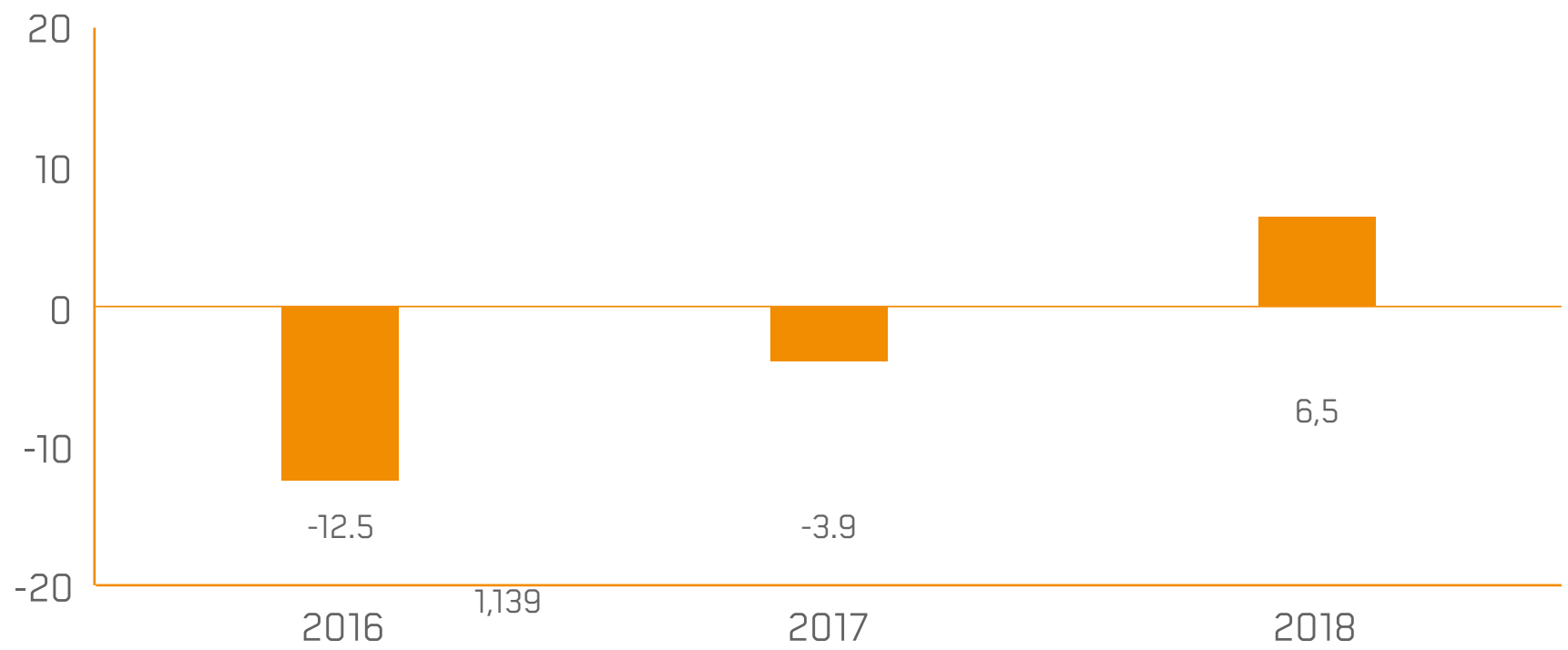
beginning of the customer relationship, electricity use, customer-initiated network electrical works, Caruna-initiated network electrical works and other customer contacts.

In 2018, our NPS index was 6.5 (on a scale of -100 to +100), which is a better result than in the previous year. We also regularly monitor customer service availability, service level, waiting times, the number of contacts, fault service availability, the turnaround time of customer-initiated electrical works and the accuracy of metering data in invoicing. These indicators help us develop our operations.

Caruna’s Customer Volumes by Voltage Level

	2018	2017	2016
Customer volume in the low-voltage network	682,000	671,000	663,000
Customer volume in the medium-voltage network	800	800	800
Customer volume in the high-voltage network	55	55	50

NPS customer satisfaction (on a scale of -100 to +100)



NON-DISCRIMINATION OF CUSTOMERS

In our customer contracts, we apply standardised and fair practices by customer group and contract type. The prices and terms and conditions of our network services are similarly fair and non-discriminatory for all network users, and they are available on our website. The terms and conditions of our network services are based on the general terms and conditions recommended by Finnish Energy, which have been approved by the authorities.

Our fair treatment of electricity retailers and other market parties contributes to an effective electricity market. Our employees are trained to take account of the necessary requirements both in customer interactions and data processing. Best practices for customer data management also include compliance with the data protection legislation that entered into force on 25 May 2018. We always process customer and personal data lawfully and transparently.

[Read more about how we process personal data](#) ➔



In our customer contracts, we apply standardised and fair practices by customer group and contract type.

Stakeholders

We seek an open and fair dialogue with all stakeholders.

We maintain an open and fair dialogue with our stakeholders. In defining the most important areas of sustainability, we have identified our key stakeholders and their expectations for Caruna. We seek an open and fair dialogue with all stakeholders and collect their feedback through an annual reputation survey. Our key stakeholders and the forms of stakeholder dialogue are listed in the table below.



Stakeholder

Expectations for Caruna

Caruna's actions in 2018

EMPLOYEES

- Professional development
- Maintaining wellbeing and motivation

- Caruna Day – a strategy and development day for all employees
- Numerous Switch job rotations and a Great Place to Work employee survey
- Supervisor coaching
- Diverse training opportunities, such as Caruna Academy, presentation and dialogue skills and project management trainings
- Promoting remote working and flexible work arrangements
- Targeted measures for developing teams and the organisation
- Developing Caruna's corporate culture with employees
- Planned activities for wellbeing at work, such as sports, fitness assessments and lifestyle courses
- Developing a new model for performance management

CUSTOMERS

- Professional, friendly and service-oriented customer service
- Communicating about changes and disturbances
- Timely fault repair
- Reliable invoicing
- Reasonable pricing
- Developing new services

- Using customer surveys and a customer panel to develop digital services
- Launching My Pages, a digital service channel for customers
- Developing an energy monitoring tool with product comparison functionality
- Segment-specific service and product offering (Caruna.fi)
- Solar power campaign
- E-invoicing campaign
- Outbound campaign to promote product changes
- Introducing a key account management model for large corporate and municipality customers
- Further developing the team structure of the customer service organisation to meet the expectations of our customer segments
- Developing our new customer management and invoicing system
- Significantly increasing automated communications in monitoring the progress of customer jobs
- Active communications with customers, incl. Caruna Sähkövahti alerts
- Collaboration with the Finnish HOA and its local associations
- Implementing the reliability of supply investment programme
- Efficient preparation for disturbances caused by weather conditions
- Developing the NPS indicators and making use of the survey results
- Participating in the Omakoti trade fair

CONTRACTORS, SUPPLIERS AND PARTNERS

- Building open and predictable partnerships
- Keeping promises
- Actively developing collaboration
- Maintaining non-discrimination and well-functioning markets
- Extensive projects
- Safe working environment

- Caruna's stakeholder events and regular meetings, Caruna's Contractor Day and Caruna's Contractor Day for Network Builders
- Maintaining and developing collaboration in accordance with the systematic management model for supplier relations
- Systematically collecting ideas for development at supplier meetings, continued focus on development in operations, development workshops
- Complying with and making use of the principles laid out in the Act on public procurement in specialised sectors (1398/2016)
- Six supplier audits
- Safety walks
- Caruna Card trainings

AUTHORITIES AND DECISION-MAKERS

(Ministries, the Energy Authority, the Finnish Competition and Consumer Authority and municipalities)

- Complying with legislation and regulations
- Maintaining the reliable operation of the electricity network
- Operating responsibly and transparently
- Maintaining an active dialogue

- Complying with legislation and regulations and contributing to their development
- Systematic and continuous collaboration with the authorities and decision-makers
- Reporting to the authorities on matters such as the electricity network structural data, financial statements and technical indicators, and submitting the electricity network development plan to the Energy Authority
- Actively participating in the Smart Grid Working Group of the Ministry of Economic Affairs and Employment
- Informing the authorities of significant events in Caruna's business operations

Stakeholder

Expectations
for Caruna

Caruna's
actions
in 2018

INDUSTRY ORGANISATIONS
AND PARTNERS

- Developing the industry
- Providing expertise
- Maintaining an active dialogue

- Contributing to industry collaboration and shaping the industry future
- Contributing to industry organisations (Finnish Energy, Eurelectric, EDSO) and drawing attention to Caruna's views
- Working in committees and working groups and sharing Caruna's expertise (Finnish Energy's network committee, electricity distribution and regulation committee, occupational safety committee and working groups, Fingrid's advisory committee, EDSO's and Eurelectric's committees)

INTEREST GROUPS
AND NGOS

- Developing collaboration in energy matters

- Increasing public awareness of the industry and Caruna's business
- Collaboration with organisations such as the Association of Energy Users in Finland (ELFI), the Federation of Finnish Enterprises, the Confederation of Finnish Industries (EK), the Finnish Home Owners' Association, the Central Union of Agricultural Producers and Forest Owners (MTK) and the Central Union of Swedish-speaking Agricultural Producers in Finland (SLC)

POLITICAL DECISION-MAKERS
AND OPINION LEADERS

- Being an open and reliable partner in energy matters
- Developing the industry


- Maintaining regular contact with key energy and political decision-makers
- Providing decision-makers with background information about current matters and increasing awareness of Caruna's business
- Contributing to the development of the energy system and suggesting solutions

AUTHORITIES

(The rescue services, the police, the National Emergency Supply Agency, the Finnish Defence Forces)

- Developing preparedness with the rescue services
- Providing the rescue services and the police with details of the designated contact persons
- Drawing up the contingency and emergency plan for the Energy Authority
- Participating in stakeholder seminars and exercises
- Participating in regional defence courses (basic, advanced and special courses)

- Informing the rescue services and other authorities about preparedness for outages caused by exceptional weather and other factors through the Krivat system
- Providing the rescue services and the police with the telephone numbers reserved for the authorities and keeping the contact details up to date
- Updating the electricity network company's contingency and emergency plans and submitting them to the monitoring authority, the National Emergency Supply Agency
- Participating in one contingency exercise held by the authorities, eight regional meetings of the National Emergency Supply Agency's Power Supply Pool and eight regional preparedness committee (ELVAR) meetings and seminars
- Contributing to the work of the incident collaboration group HÄTY

Stakeholder	SHAREHOLDERS	LENDERS	MEDIA	
Expectations for Caruna	<ul style="list-style-type: none"> Increasing the company's value in a sustainable way Implementing the chosen strategy Good corporate governance 	<ul style="list-style-type: none"> Complying with legislation and regulations Complying with the UN Declaration of Human Rights, the International Labour Organization's (ILO) conventions, the UK anti-corruption principles and the UN Global Compact initiative Maintaining a strong credit rating Open communications and disclosure of information about the company's financial standing 	<ul style="list-style-type: none"> Open and proactive communications Good availability of experts for interviews Timely and easy access to information 	<div> <p>We also hold project meetings with representatives of key environmental organisations and landowners relevant to Caruna's operations.</p>  </div>
Caruna's actions in 2018	<ul style="list-style-type: none"> Participating in nine meetings of the Board of Directors and eight committee meetings as part of governance Regular personal contacts Observing Caruna's guidelines and policies 	<ul style="list-style-type: none"> Bi-annual and annual reporting Compliance certificates Providing guideline training and other internal training Maintaining effective operations and a strong cash flow Holding around 40 meetings with credit rating agencies, banks and other financial institutions 	<ul style="list-style-type: none"> Responding to media enquiries for interviews and contacts Press releases and articles National and regional meetings with media representatives Media training for management and employees Communicating about disturbances through the website, social media channels, the media and text messages Providing more information about Caruna Developing and expanding the social media content and channels 	



Sponsorship and support for clubs

We support responsible Finnish actors and associations in our network areas. Our main form of support is low-threshold Caruna Easy Hockey activities, which we run together with the Finnish Ice Hockey Association.

Caruna has a sponsorship agreement with the Finnish Ice Hockey Association from 2016 to 2019. The emphasis was on Caruna Easy Hockey, which is for young people aged 10 to 17 who want to play ice hockey but do not have the time or opportunities to train several times a week. Easy Hockey does not impose any targets or compulsory training, allowing the players to decide the level on which they play. Through Easy Hockey, we want to contribute to the wellbeing of children and young people and leisure activities in clubs across Finland.

In addition to Caruna Easy Hockey, we annually support local sports and cultural events and other responsible Finnish events and projects in our network areas. In the summer, we sponsored the electrification of Puistoblues in Järvenpää. We also supported sports club Sporting Kristiina in building an artificial turf pitch. In the autumn, we took part in the Light Up For Mito campaign by illuminating our Keilaniemi substation. Light Up For Mito raised awareness of the mitochondrial disease by lighting up buildings in green for 24 hours. Mitochondrial diseases include a large number of inherited nervous, muscle, heart and liver diseases that affect both children and adults.

Through Easy Hockey, we want to contribute to the wellbeing of children and young people and leisure activities in clubs across Finland.



CORPORATE RESPONSIBILITY

- RESPONSIBILITY
- SAFETY
- ENVIRONMENT
- PERSONNEL
- PROCUREMENT



Responsibility

At Caruna, corporate responsibility is a part of everyday work in line with Caruna's values and business strategy. We work reliably and responsibly with our customers, partners and owners for the good of Finnish society. We prioritise safety and environment in everything we do.

Caruna's [Code of Conduct](#) lays the foundation for our way of work. It defines how we take care of Caruna's assets, how we work together and treat each other and how we run the electricity distribution business.

Caruna has reported on corporate responsibility in accordance with the Global Reporting Initiative (GRI) G4 materiality process since 2015. In 2018, we began using GRI Standards for corporate responsibility reporting.

In order to identify matters of relevance to our business, we conducted a thorough stakeholder analysis in 2015 and determined our corporate responsibility themes. We revisited the materiality analysis and corporate responsibility themes in 2018.

We have identified the matters of relevance to our business and the corporate responsibility themes based on them. Targets were set for the themes and integrated into Caruna's management system.

We are also involved in promoting global corporate responsibility targets. Of the UN's sustainable development goals, we are promoting targets related to energy, infrastructure and sustainable cities and societies.

Our aim is to integrate corporate responsibility more closely into our strategy and annual targets.

We want to make a credible contribution to combating the impacts of climate change.

THE CORPORATE RESPONSIBILITY PROGRAMME AS PART OF THE BUSINESS STRATEGY

In 2018, we began modernising our corporate responsibility programme by updating our corporate responsibility themes. Our aim is to integrate corporate responsibility more closely into our strategy and annual targets. The work will continue in 2019, when the business targets are linked to the updated corporate responsibility themes.

Caruna’s Board of Directors monitors and evaluates the corporate responsibility action plan while the Management Team ensures the execution of the action plan and decides on responsibility targets. Caruna’s corporate governance control group prepares and develops our corporate responsibility operating model together with the business unit management teams that are responsible for the operative implementation in their units.

Areas of corporate responsibility



Corporate responsibility 2018 targets and actual results

Theme	Indicator	Goal 2018	Outcome 2018	Goal 2019
Reliability of supply	SAIDI*	102 min.	103 min	99 min
	KAH**	EUR 20.8 million	EUR 24.2 million	EUR 21 million
	Cabling rate	51%	52%	56%
Customers and society	Customer satisfaction (NPS)	5.0%	6.5%	8.0%
	Reputation survey results	Improvement from last year’s measurement	Result improved since the previous report.	Improvement from last year’s measurement
	Stakeholder collaboration	Active stakeholder collaboration	Implemented	Active stakeholder collaboration
Safety	Injury frequency (TRIF***) of own personnel	0	0	0
	Injury frequency (LWIF****) of contractors	≤8	4.7	7.5
	Electricity-related injuries to third parties (reported to Tukes)	0	3	0
	Pass rate of the Caruna Card subcontractor training (new target 2018)	100%	100%	100%
Personnel	Employee satisfaction	70	72	74
	Training days	2 working days per person	3 working days per person	2 working days per person
	Absences due to illness	<2.0%	2.6%	2.5%
Environment	Number of oil spills	≤7 (≥100 kg)	3 (≥100 kg)	≤3 (≥100 kg)
	Further processing of dismantled networks*****	60%	81%	>90%
	Number of pole-mounted transformers in groundwater areas*****	250	350	0
	Decrease in the number of overhead lines	-3,800 km	-4,000 km	-3,300 km
Responsible procurement	Contractual suppliers auditing	Six audits	Six audits	Eight audits.
	Supply code of conduct -course	Accomplishment rate 100%	*****	Building and commissioning
	Updating corporate responsibility targets in tenders*****	-	-	Goals incorporated in to all 2019 tenders
	Further development of supply chain HSEQ requirements*****	-	-	Evaluation has been done and the development targets identified
Openness, ethical business principles and good corporate governance principles	Pass rate of Caruna's Code of Conduct online training	100%	100%	100%
	Management systems and processes	Development and introduction of a new management model	Organisation restructuring and development of our operating model	Introduction of our new operating model and application of a new organisation structure
	UN’s Sustainable Development Goals	More specific indicator definitions	Sustainable development goals in line with business goals	Responsibility program is in line with UN goals

*SAIDI = System Average Interruption Duration Index. System Average Interruption Duration Index per customer. The target for 2018 was reported erroneously in the report for 2017.

**KAH = Inconvenience caused by interruptions. The indicator reflects the calculated cost of interruptions, which describes the inconvenience caused to customers.

***TRIF = Total Recordable Injury Frequency. The indicator reflects the ratio of work-related injuries to Caruna’s employees, leading to absences from work or requiring medical treatment visits, in relation to working hours (incidents/ million realised working hours).

****LWIF = Lost Workday Injury Frequency. The indicator reflects the ratio of occupational accidents to contractors or subcontractors, as well as trainees and temporary staff, while working for Caruna or within Caruna’s work sites, leading to a disability lasting a minimum of one working day, in relation to working hours (incidents/million realised working hours).

*****Materials recycling has been outsourced to Kuusakoski Oy from August 2015. The collaboration with Kuusakoski applies to new contractor agreements. The aim is for all material removed from the network to be processed via Kuusakoski in 2019. Under the old agreements, the contractors handle recycling.

*****Replacement of pole-mounted transformers in groundwater areas is proceeding rapidly, and the secondary substations, which will replace them, have been built in line with the 2018 plans. A large number of old transformers will be dismantled in winter 2018-2019 – more than forecast – which explains why the target level at the end of 2018 was not reached.

*****The course has been postponed until 2019.

*****New target for 2019.

Safety

We strive to ensure that all our employees and partners can work in a healthy, safe and motivating environment.

Safety comes first in all Caruna’s activities. The aim is to ensure that our electricity networks and operations do not cause any danger or harm to people or the environment.

ACHIEVEMENTS IN 2018

In 2018, we updated our occupational health and safety certificate to comply with ISO 45001:2018.

PASS RATE OF THE CARUNA CARD SUBCONTRACTOR TRAINING 100%

OCCUPATIONAL HEALTH AND SAFETY CERTIFICATE UPDATED TO COMPLY WITH ISO 45001:2018

INJURY FREQUENCY (TRIF) OF OWN PERSONNEL 0

WE CONDUCTED MORE THAN 900 SAFETY OBSERVATIONS ROUNDS, ALSO REFERRED TO AS SAFETY WALKS

MORE THAN 1,100 SUBCONTRACTORS COMPLETED THE CARUNA CARD TRAINING

THE INJURY FREQUENCY OF CONTRACTORS AND SUBCONTRACTORS WAS 4.7 INCIDENTS/MILLION WORKING HOURS

AND OUR PARTNERS COMPLETED ALMOST 3,300 SITE INSPECTIONS

We repair all faults that could potentially cause danger and remove any trees fallen on power lines as quickly as possible.



SAFE ELECTRICITY NETWORK

We identify and evaluate risks and hazards related to our electricity network and operations on a regular basis. We categorise potential safety flaws and repair them in order of urgency: either as immediate fault repairs, as part of maintenance scheduled for the near future, or within the next few years during projects included in our long-term network improvement programmes.

All of our electrical equipment bears warning plates to indicate the danger of electric shock. We prevent any intentional or unintentional access to electrical equipment by means of locks, structural solutions and careful placement of equipment. We repair all faults that could potentially cause danger and remove any trees fallen on power lines as quickly as possible. We mark off work sites and provide clear signage to ensure outsiders are prevented from accidentally entering these areas.

Occasional electrical accidents and near misses do, however, occur every year in Caruna’s networks. We investigate all accidents and serious near misses and determine measures to avoid these in the future. Most of the electrical accidents are caused by non-compliance with safety regulations

regarding electrical work. We report all electrical accidents and near misses to the Finnish Safety and Chemicals Agency (Tukes) to share information and improve electrical safety in the sector.

In 2018, there were three electrical accidents and 15 near misses related to electrical safety involving third parties in our network areas.

The number of electrical accidents and near misses was on the rise in 2017 and 2018 both in general and at Caruna’s work sites. This is why improving electrical safety will be one of the priorities in Caruna’s safety activities in 2019.

Electrical Safety Key Indicators

	2018	2017	2016
Electricity-related injuries to third parties and reported to Tukes (no of incidents)	3	8	0
Near misses involving outsiders and reported to Tukes (no of incidents)	15	1	2
Reported overvoltage events caused by network faults (so-called zero faults) (no of incidents)	235	384	358

SAFETY OF SOCIETY

The reliability of electricity supply has an indirect impact on the safety of the entire society. Our electricity network improvement programme increases the operational reliability of users who are critically dependent on electricity and minimises the probability of adverse effects to society. Critical users of electricity include hospitals, care homes, public transport, the base stations of telecom service providers, water supply plants and waste water treatment plants.

[Read more about how important electricity distribution is to the safety and security of supply of society.](#) ➔

CUSTOMER SAFETY

Ensuring customer safety is an integral part of Caruna’s safety management under all circumstances. If our electricity network suffers damage, we repair the faults quickly.

We monitor faults and the quality of electricity via remotely readable meters. We regularly analyse any atypical data registered by the meters to identify possible faults in the electricity network or customers’ meter reading centres. We investigate and repair unclear cases. In 2018, remotely readable meters helped us find 235 faults in the electricity network or customers’ meter reading centres. We repaired these immediately.

We have also trained our customer advisors to identify different types of faults on the basis of customer descriptions.

OCCUPATIONAL SAFETY

We strive to ensure that all our employees and partners can work in a healthy, safe and motivating environment. Caruna is a member of the Zero Accident Forum of the Finnish Institute of Occupational Health, and we are committed to the concept of zero accidents.

Occupational safety calls for collaboration between all parties working at the office, sites or projects. Occupational safety is based on systematic risk identification and assessment. We require both ourselves and our partners to continuously monitor the risks associated with work methods and environments. A safety plan is drawn up for each site and kept up to date.

Despite these efforts, near misses and even occupational accidents do sometimes occur. We require that all incidents are reported and investigated, that corrective or preventive measures are set up for them, and that the progress of these measures is followed up. We share the lessons learned from the investigation of incidents with our partners to help prevent similar occurrences in the future throughout the supply chain.

We monitor the safety of our work environment and operations by conducting regular site inspections and safety observation rounds, or Safety walks. We have set our employees Safety walk goals based on their duties. In 2018, our employees completed a total of 904 Safety walks, which is an all-time high.

Site inspections are mainly carried out by the contractors and project supervisors of our partners. Our contractors monitor work sites and send us safety reports. To make this easier for them, we have provided mobile



tools to enable them to send reports directly from the field, attaching any necessary photographs. In 2018, our project supervisors and contractors reported a total of 3,295 site inspections.

CONTRACTOR SAFETY

The requirement for safe work and a safe work environment also applies to all Caruna’s contractors and subcontractors. We agree on safety rules and practices when entering into collaboration agreements. We give induction training to all our contractors and require all subcontractors to be presented to us for advance approval.

One of our key indicators is lost workday injury frequency (LWIF), which measures contractor and subcontractor safety. It reflects the ratio of occupational injuries to contractors, subcontractors, trainees and temporary workers, while working for Caruna or at Caruna’s work sites, leading to a disability of at least one working day and the number of hours worked (incidents/million working hours).

We have systematically enhanced our reporting systems for contractor injuries and working hours. Through training, orientation and the systematic processing

The requirement for safe work and a safe work environment also applies to all Caruna’s contractors and subcontractors.

Although the number of working hours at our sites was record-high in 2018, there was a significant decrease in serious contractor and subcontractor injuries from previous years.

of incidents we have been able to significantly reduce injury frequency. In 2017, we saw a setback in the injury frequency of contractors. Since then, our two-year programme for the improvement of contractor safety and particularly our extensive Caruna Card training, aimed at improving subcontractor safety, have borne fruit. In 2018, we achieved a good level once again: 4.7 incidents per million working hours.

We monitor serious contractor and subcontractor injuries separately. We classify an injury as serious if it leads to a disability of at least 30 days or a permanent disability.

Although the number of working hours at our sites was record-high in 2018, there was a significant decrease in serious contractor and subcontractor injuries from previous years. One serious contractor injury occurred in 2018. A subcontractor was following the unloading of heavy pillars at a substation work site when the load swayed and hit him, resulting in a shin bone fracture.

Our long-term work to enhance the safety of the supply chain – our contractors and their subcontractors – has yielded results: all our leading safety indicators have improved.

DEVELOPING SUBCONTRACTOR SAFETY

Improving the occupational safety of subcontractors in collaboration with main contractors has been one of our priorities in our safety activities in 2017 and 2018. Some of the key measures have included:

Establishing the operations of the HSE cooperation network together with our main contractors

Developing our own safety inspections

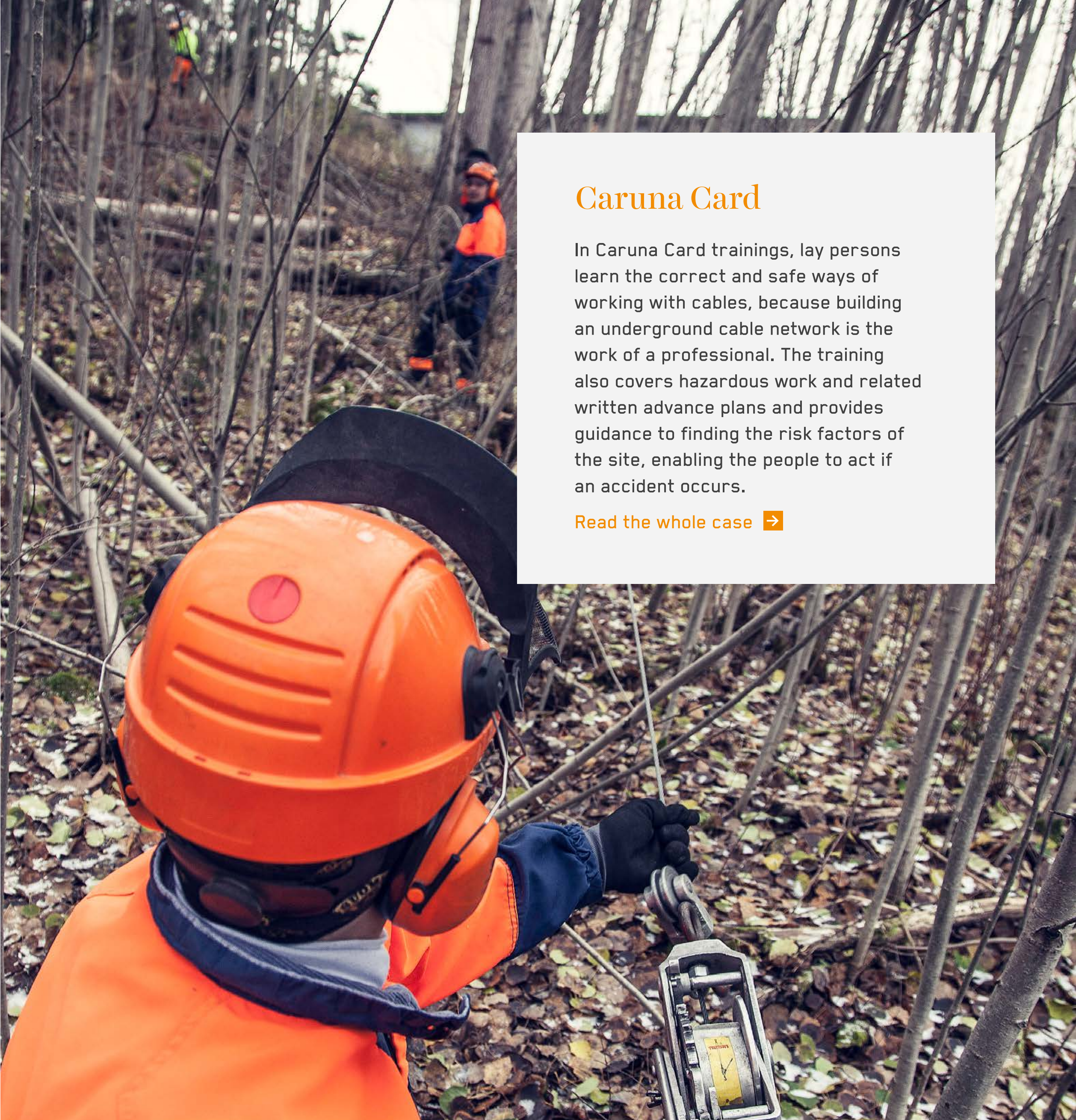
Developing the management of safety incidents throughout the supply chain

Training subcontractors

Caruna Card

In Caruna Card trainings, lay persons learn the correct and safe ways of working with cables, because building an underground cable network is the work of a professional. The training also covers hazardous work and related written advance plans and provides guidance to finding the risk factors of the site, enabling the people to act if an accident occurs.

[Read the whole case](#) ➔



Occupational safety key indicators

	2018	2017	2016
Safety walks by own personnel* (no)	904	422	492
Safety walks, work site inspections and work site visits by Caruna’s contractors and other partners in total	3,295	2,930	2,277
Injury Frequency of own personnel (TRIF)**	0	0	0
Injury Frequency of contractors (LWIF)***	4.7	9.5	5.2
Fatalities related to work	0	0	0
Share of sick absence of theoretical working days (%)	2.6	1.8	2.2

*Safety walks carried out by Caruna’s employees on worksites and offices.
**The TRIF (Total Recordable Injury Frequency) reflects the ratio of occupational accidents to Caruna’s employees, leading to absences from work or requiring medical treatment visits, in relation to working hours (incidents/million realised working hours).
***The LWIF (Lost Workday Injury Frequency) reflects the ratio of work-related injuries to contractors or subcontractors, including trainees and temporary workers, while they work for Caruna or are within Caruna’s work sites, leading to a disability of at least one working day, in relation to working hours (incidents/million realised working hours).

Occupational safety key indicators

	Serious*	Mild	Others
Personnel, women	0	0	0
Personnel, men	0	0	0
Contractors, women	0	0	0
Contractors, men	1	11	0

*An injury leading to a disability of over 30 days or a permanent disability.

As part of our action programme for contractor safety, we launched Caruna Card training for subcontractors who are not electricity professionals but, for example, excavation contractors or forestry workers. The idea is to give subcontractors across the field a basic understanding of the safety factors at stake in Caruna’s operating environment, and to support contractors in fulfilling their own induction obligations. In 2018, Caruna Card training was attended by 1,122 people.

SAFETY AWARD

We reward our partners for good safety-related work and address any shortcomings.
We are currently revising our safety award concept. The 2018 Safety Award will be presented in spring 2019.

SAFETY AND ENVIRONMENTAL TRAINING

We train and provide induction for both our own and our partners’ personnel in matters related to safety and the environment.
An online course in safety and environmental matters is obligatory for everyone working at Caruna’s work sites. In addition, an online course in electrical safety at the work site is recommended for those working at the sites. The qualifications are valid for three years, and more than 2,500 people now have valid qualifications. In 2018, 400 people completed both the safety and environmental matters course and the electrical safety course.
The new Caruna Card training supplements our training offering for contractors.
We also provide our partners with different types of training in safety and environmental matters, such as on-duty service, fault detection, land-use planning, major disturbance situations and forest operations near power lines. More than 600 people attended these courses in 2018.

The new Caruna Card training supplements our training offering for contractors.

Environment

We continued to execute network improvement projects to reduce energy losses while taking other energy-efficiency actions.

We aim to manage the environmental impact of our electricity network and operations throughout their life cycles. We strive to minimise environmental hazards and maximise the positive environmental effects in every phase of our operations.

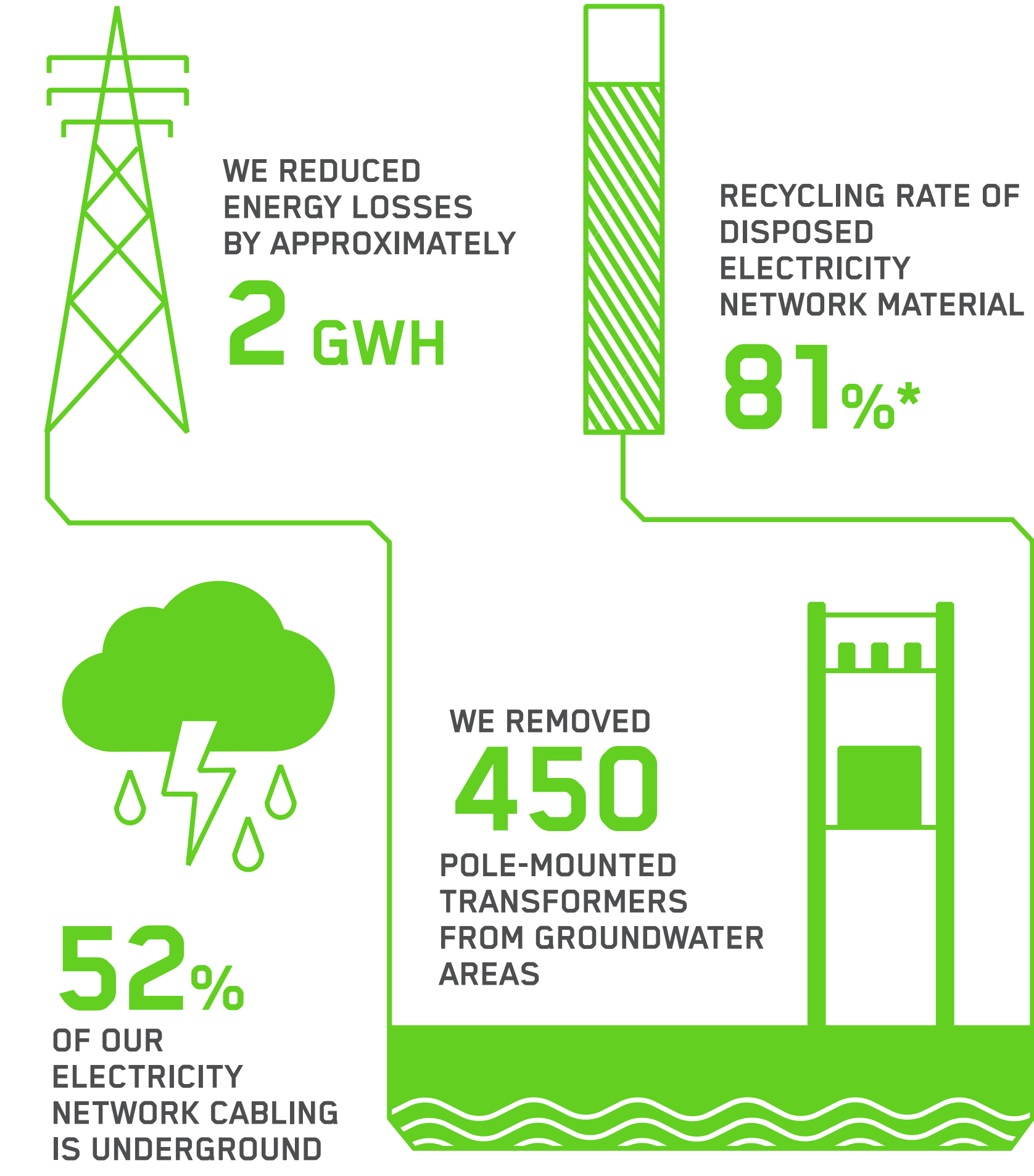
ACHIEVEMENTS IN 2018

We continued to execute network improvement projects to reduce energy losses while taking other energy-efficiency actions. The number of oil leaks remained low: there were three oil leaks of over 100 kg. Caruna's ISO 14001:2015 environmental management certification received re-approval after a maintenance evaluation. We declared the recycling rate, in materials or in energy, for the key components dismantled from our electricity network.

ISO 14001:2015 ENVIRONMENTAL MANAGEMENT CERTIFICATION RECEIVED RE-APPROVAL

THE NUMBER OF OIL LEAKS REMAINED LOW

DECREASE IN THE NUMBER OF OVERHEAD LINES APPR 4,000 KM



*The share of material taken to Kuusakoski for sorting and further processing of all material dismantled from electricity networks (%)

KEY ENVIRONMENTAL IMPACTS

We identify and evaluate the environmental impacts of our business and projects. The environmental impacts of our business are reviewed in conjunction with business planning every autumn, and the environmental impacts of projects are reviewed during the project planning phase.

Our most significant environmental impacts and the key management measures are listed in the table below.

Environmental impact	USE OF MATERIALS	ENERGY EFFICIENCY	CLIMATE IMPACTS
Target	<ul style="list-style-type: none">• Ensuring safety throughout the life cycle of materials• Improving the recovery rate of dismantled materials• A watertight waste management and accounting process	<ul style="list-style-type: none">• Using energy more efficiently• Promoting energy efficiency measures for customers	<ul style="list-style-type: none">• Promoting measures to combat climate change• Making preparations for the impacts of climate change• Efficient processes
Means of management	<ul style="list-style-type: none">• Using materials that comply with material regulations and take into consideration the impacts throughout their life cycles• Ensuring the composition and properties of new materials, as well as safe use and disposal methods• Appropriate treatment, exploitation and disposal of dismantled materials• Selecting contractual partners and ensuring that operations conform to requirements• Guidelines, monitoring and control	<ul style="list-style-type: none">• Optimising the structure of the electricity network, selecting materials and optimising the assortment limit• Actively developing energy efficiency communications, advice and services for customers	<ul style="list-style-type: none">• Optimising the structure of the electricity network to meet the changing needs of energy markets and customers• Promoting distributed renewable energy generation and energy storage (flexible connection to the grid)• Enabling demand response as a data provider• Optimised construction method covering large entities• Joint construction with other operators (municipalities and other infrastructure networks)• Increasing the rate of underground cabling and network automation to reduce the need for fieldwork (inspections, maintenance, fault repair)
Indicator	<ul style="list-style-type: none">• Quantities of new material (units of each type)• Waste accounting (tons and euros)• Recycling rate for dismantled material (%)• Contractor and supplier audits (number of audits)	<ul style="list-style-type: none">• Effects of the electricity network overhaul programme on relative network losses (%)	<ul style="list-style-type: none">• Number of renewable energy connections and number of storage registrations (units & MW)• Ratio of joint construction to total construction (%)• Carbon footprint and handprint

Environmental impact		
Target	RESPONSIBLE LAND USE AND BIODIVERSITY <ul style="list-style-type: none"> • Minimising harmful impacts on the environment and landscapes during the planning phase • Reinforcing the positive effects • Reducing land use restrictions 	LEAKS INTO THE ENVIRONMENT <ul style="list-style-type: none"> • Preventing oil leaks • Preventing SF6 leaks • Absolute prevention of severe and permanent environmental damage
Means of management	<ul style="list-style-type: none"> • Planning and constructing the electricity network, routes and structures for underground cabling • Systematically paying consideration to environmental conditions, conservation areas and other special areas in all electricity network operations in every phase of the life cycle • Effective collaboration with landowners and other stakeholders in land use and permit matters • Ensuring environmental care on project sites during and after work • Managing customer feedback and developing operations on the basis of feedback 	<ul style="list-style-type: none"> • Eliminating high-risk sites by overhauling pole-mounted transformers in groundwater areas • Preventing oil from leaking into the environment by using oil recovery vessels in transformer substations, as well as in real estate and park transformers • Systematic processing of environmental damage and ensuring • Managing the SF6 gas balance, contractor awareness and expertise
Indicator	<ul style="list-style-type: none"> • Cabling rate (%) • Land released for agricultural and forestry uses (ha) • Electricity network located in Natura areas (km) • Observations made during work site inspections (number) • Customer feedback (number of pieces) • Stakeholder satisfaction (NPS, number of pieces of feedback) 	<ul style="list-style-type: none"> • Pole-mounted transformers/all transformers in groundwater areas and other areas • Number of oil leaks • Number of SF6 gas leaks



We set precise requirements for material procurements during the competitive tendering phase, with a major weighting on environmental and safety aspects.

Key Indicators for Environmental Impact

	2018	2017	2016
Grid loss (GWh)	398.9	379.8	389.3
Own electricity consumption* (GWh)	1.86	2.06	2.21
Own heat energy consumption* (GWh)	1.61	1.76	1.82
SF6 gas leak volume (kg)	1.55	4.8	23.29**
Number of significant (≥100kg) oil spills	3	1	7
Volume of disposed electricity poles (tonnes)	3,063	2,732***	3,013
Volume of dismantled overhead cables (km)	4,000	3,200	2,200
Recycling rate of disposed electricity network material (%)	81****	32	15
Number of pole transformers within groundwater areas	350	800	1,150

*The energy consumption of the restaurant operating in Caruna’s Upseerinkatu premises has not ben taken into account in the electricity and heat energy consumption figures.
**Of the 2016 leaks, the Gumböle primary substation gas leak accounted for 20 kg.
***The target for 2018 was reported erroneously in the report for 2017.
****The share of material taken to Kuusakoski for sorting and further processing of all material dismantled from electricity networks (%)

USE OF MATERIALS

Material procurement

The number of network construction components we procure, and the amount of raw materials contained in the components, is substantial. The main network construction components used are underground cables, park transformers and distribution transformers.

We set precise requirements for material procurements during the competitive tendering phase, with a major weighting on environmental and safety aspects. During the procurement phase, we identify the material composition of procured components, as well as any hazardous and harmful properties, safe usage methods and the correct method of recycling at the end of the life cycle.

Every year, we connect almost 4,000 new distribution transformers to our electricity network. In terms of raw materials, this equates to almost 400 tons

of aluminium, 1,500 tons of steel and more than 600 tons of mineral oil. The new distribution transformers we use conform to the ECO Directive.

The electric cables we use contain only aluminium as a conductive material. Every year, we procure an estimated 3,500 kilometres of cable, which includes approximately 3,000 tons of aluminium.

Dismantling and recycling the electricity network

As we bury electricity network cables underground, we are dismantling significant quantities of transformers, iron, conductors, cables, mixed waste, impregnated timber poles, glass, porcelain, concrete and copper from our network of overhead lines.

Until autumn 2015, the majority of the material from our dismantled network has become the property of our contractors, except for the poles and transformers. Contractors’ partners processed the dismantled materials, and the quantities of dismantled materials were reported to us regularly.

In August 2015, we made a service agreement with Kuusakoski Oy on transporting and processing the dismantled material. Under the agreement, Kuusakoski is responsible for collecting the material dismantled from the network from work sites and for processing it. The impregnated timber poles are the exception to this – Kuusakoski is only responsible for transporting these from work sites to further processing. The material processed via Kuusakoski can be monitored in real time.

In 2018, Kuusakoski processed approximately 81% of the dismantled materials from our network projects, amounting to 15,900 tons. Kuusakoski will cover an increasing large proportion of our network dismantling projects as and when Caruna’s agreements with contracts are renewed.

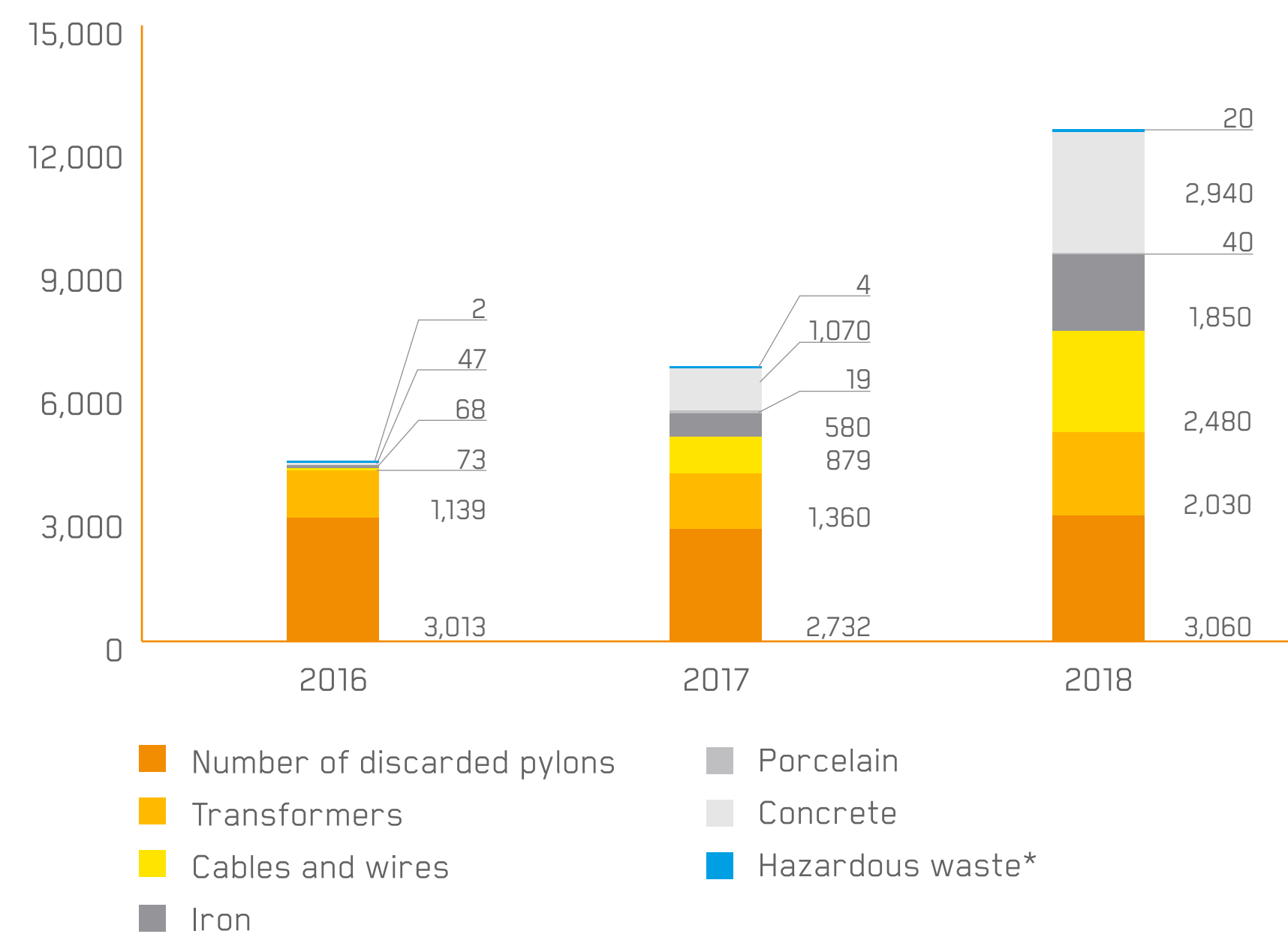
The majority of the dismantled material is sent for recycling, reuse or energy use. Only a small proportion is taken by Kuusakoski to the appropriate rubbish dumps. For example, it is currently possible to recycle and reuse more than 97% of transformers and cables.

In 2018, more than 3,000 tons of impregnated timber poles were removed from our electricity network. There are strict regulations on processing and disposing of poles. CCA and creosote, which were previously commonly used to treat timber, contain hazardous substances. It has been prohibited to use CCA on new poles since 2006. Poles impregnated with these substances must not come into contact with people, animals or food, and they must not find their way to consumers under any circumstances.

In 2018, Kuusakoski processed approximately 81% of the dismantled materials from our network projects, amounting to 15,900 tons.

Since 2015, all of the new distribution transformers we have procured have conformed to the low-loss ECO standard in accordance with the updated EU Directive.

Amounts of network materials recycled by Caruna, in tons



*Asbestos-containing waste, lead batteries and PCB waste oil

Since 2007, we have only used C-poles impregnated with copper compounds. Copper compounds are widely used to impregnate timber for a number of purposes, including consumer applications.

We boosted the efficiency of our pole processing by developing instructions and contract templates for processing poles, and by increasing the amount of monitoring on work sites. If any poles disappear from demolition sites, we inform the police.

ENERGY EFFICIENCY

The majority of the energy we consume is transmission and transformation loss on the electricity network. Energy loss always occurs when electricity is transmitted and distributed, and the electricity network owner is liable for this. We strive to improve the energy efficiency of the electricity network and reduce losses.

Since 2015, all of the new distribution transformers we have procured have conformed to the low-loss ECO standard in accordance with the updated EU Directive.

We use CO₂-free electricity to compensate for losses on the electricity network. In 2018, we purchased 399 GWh of electrical energy to compensate for energy losses.

In addition, the reserve power generators in our network area require small amounts of fuel. Our contractors purchase the fuel.

Energy efficiency agreement

Energy efficiency is a key aspect of Caruna’s environmental responsibility and customer cooperation. We have been involved in the national energy efficiency agreement, and the energy saving agreement that preceded it, since the beginning of the agreement system in 1997. The previous agreement ended at the end of 2016, and Caruna joined the agreement for the next period from 2017 to 2025.

We are committed to taking energy efficiency into consideration in all of our internal activities and using energy more efficiently, particularly with regard to network losses. Our large-scale network improvement programme will reduce the transmission and distribution losses on the electricity network. We are also reducing losses by means of network planning, component selections and optimising the basic switching state.

We have analysed the impacts of our investments on electricity network losses. In our estimate, the development measures we reduced network losses by approximately 2 GWh in 2018.

Furthermore, we are committed to raising our customers’ awareness of their own electricity usage and helping them to become more energy efficient. We offer customers an energy reporting service, energy efficiency advice and guidance on deploying their own independent electricity generation.

In 2018, we improved the ventilation heat recovery system, which has reduced the need for district heating.

Electricity Network Losses in Relation to the Total Quantity of Distributed Energy (%)

	2018	2017	2016
Caruna Oy regional network (110 kV)	0.6% (38.9 GWh)	0.6% (40.1 GWh)	0.6% (45.0 GWh)
Caruna Oy distribution network	3.9% (275.5 GWh)	3.7% (262.0 GWh)	3.6% (261.4 GWh)
Caruna Espoo Oy distribution network	2.6% (84.5 GWh)	2.5% (77.7 GWh)	2.5% (82.8 GWh)

Own energy consumption and generation

Caruna’s own energy consumption consists mainly of the electricity and heat energy that we consume in our office buildings. The majority of our own energy consumption takes place in our Espoo office on Upseerinkatu, where we began operating in September 2015. In 2018, we consumed 1.86 GWh of electrical energy and 1.61 GWh of heat energy.

Almost 75% of the energy consumed at the Upseerinkatu office is used for cooling, heating and ventilation for servers, the control room and the remainder of the building. Other significant energy consumption sources include heating domestic water and lighting. The energy consumed by the restaurant in the building was not included in Caruna’s energy consumption measurement.

In 2018, we improved the ventilation heat recovery system, which has reduced the need for district heating.

Caruna has two solar power generation points, which are primarily intended to provide first-hand experience of distributed energy generation.

We had 110 solar panels installed on the roof of our Upseerinkatu office building at the end of 2015. The nominal output of the solar panels is approximately 29 kWp. In 2018, the solar panels generated approximately 25.1 MWh of energy. We used this energy in our office. We also used geothermal cooling to generate 96.1 MWh of thermal energy to cool our building.

In addition, there are 119 solar panels on the roof of our substation in Keilaniemi, Espoo. In 2018, the solar panels generated approximately 23.2 MWh of energy. We used approximately 10.6 MWh of the energy at the substation, and we transferred the remainder to the distribution network to compensate for network losses.



CLIMATE IMPACTS

We are promoting measures to combat climate change. We are optimising the structure of the electricity network to respond to changing needs, and we are offering a flexible platform for measures that will support more efficient energy consumption and reduced emissions.

We are striving to boost the efficiency of our own processes by building the electricity network in a way that covers large entities, increasing the amount of joint construction with other operators such as municipalities and telecoms companies, and reducing the amount of fieldwork required by placing cables underground and increasing the amount of network automation.

Climate change will have wide-ranging impacts on Caruna’s business. The increase in extreme weather events, such as storms and floods, will pose a challenge to electricity distribution. Indeed, the very essence of our activities is to build a weatherproof network by putting cables underground, conducting preventive maintenance of power line corridors, selecting good routes and materials, and increasing the amount of automation of the electricity network. In 2019, our environmental activities will focus on climate change from the perspectives of evaluating climate impacts and making preparations for such impacts.

In 2019, our environmental activities will focus on climate change from the perspectives of evaluating climate impacts and making preparations for such impacts.

Greenhouse gases

Sulphur hexafluoride (SF6) is a powerful greenhouse gas. However, it is also unparalleled at insulating electrical equipment. The electrical components in SF6-insulated switchgear are shielded from contact thanks to the gas, which reduces the danger of accidental electric shocks, improves the safety of the electricity network and improves the occupational safety of our contractors. We minimise potential SF6 gas leaks from switchgear and the entailing environmental impact by systematically monitoring, inspecting and maintaining equipment. We monitor the status of the SF6 gas in switchgear in conjunction with regular condition inspections, and we document gas leaks and any suspected defects related to the gas meter. We keep a record of the SF6 gas balance and leaks, and we report them annually to Finnish Energy. If contractors handle SF6 gas, we require them to hold the necessary qualifications. The amount of SF6 gas in our electricity network has increased since 2017 because we are transitioning to completely enclosed, gas-insulated SF6 medium-voltage switchgear as the new park transformer agreements take effect. These offer better reliability and operational safety. In 2018, the total amount of SF6 gas in Caruna’s high-voltage and medium-voltage network was approximately 26,000 kg. Approximately 5,500 of the 32,300 distribution substations on Caruna’s distribution network contained SF6 gas. A total of 1.55 kg of SF6 gas leaked into the atmosphere, which is less than 0.01% of the total amount of the gas.

SF6 Gas and Leaks

	2018	2017	2016
Volume of SF6 gas in Caruna’s electricity network components (kg)	26,600	14,400	9,610
SF6 leaks (kg)	1.55	4.8	23.3
SF6 leaks (CO ₂ e*)	35.3	109.4	531
Percentage of SF6 leaks of total volume of gas (%)	under 0.01	0.03	0.24

*CO₂e = ton of carbon dioxide equivalent = GWP value x weight; GWP = Global Warming Potential; the GWP value of SF6 gas is 22,800.

RESPONSIBLE LAND USE AND BIODIVERSITY

We are committed to using land responsibly as we design, build and maintain a reliable electricity network. Responsible land use involves taking the environmental impacts of the electricity network into consideration throughout its life cycle in such a way that the impacts caused by the electricity network are as minor as possible or potentially even positive for landowners and the environment. We plan network routes and structures in such a way that sensitive areas in terms of nature and wildlife conservation are primarily avoided. If necessary, permits are obtained in accordance with the legal requirements. We strive to reconcile the needs and expectations of different stakeholders when we select routes and structures for the electricity network. The new electricity network is being built beside roads and in public areas whenever possible. It is of paramount importance to us that we can work effectively with landowners, municipalities, centres for economic development, transport and the environment, the National Board of Antiquities, environmental associations and other stakeholders in matters pertaining to land use. Underground cabling protects biodiversity and reduces the impacts on plant and animal species. In addition to underground cabling, we do our best to prevent the risk of bird collisions and electric shocks by installing marker balls on overhead lines and landing perches on poles. We assess the impacts of network improvement projects on biodiversity when we plan the project and apply for permits. Sensitive areas in terms of nature and wildlife, such as Natura areas and nature conservation areas, are identified with the help of conservation areas marked on the network information system. In principle, we avoid placing the network in these areas and having effects caused by the network extending into these areas. Maintenance of the electricity network takes account of the impacts of repair work on protected areas and wildlife. For example, we avoid doing clearing work, which is necessary to make space for the electricity network, in bird nesting areas during nesting season, and we are careful to avoid unnecessary damage when we work in sensitive areas.

[Read more about the principles and agreements applying to land use](#) ➔

In 2016, we began a programme to overhaul pole-mounted transformers in groundwater areas with the aim of minimising the risk of the groundwater becoming contaminated by oil leaks.

There were no large oil leaks or environmental impacts caused by oil leaks.

ENVIRONMENTAL DAMAGE

Typical incidents of environmental damage in our business involve transformer oil leaking into the environment if a transformer is damaged. In Finland, lightning strikes cause more than half of all incidents of damage to distribution transformers.

Building and pad-mounted secondary substations and primary substations have oil recovery vessels below them to prevent oil from leaking into the environment in the event of damage. Pole-mounted transformers are vulnerable to changing weather conditions, and they do not have oil recovery vessels. Pole-mounted transformers contain 100–200 kg of mineral oil but, if the transformer is damaged, generally only a fraction of this leaks into the environment.

If a leak occurs, we clean up the leaked oil as soon as possible and ensure that the decontamination measures were sufficient by analysing soil samples. We deliver information on the oil leak along with a decontamination report to the authorities, which in this case are the regional centres for economic development, transport and the environment and the municipal environmental auditor as well as to landowners.

In 2018, 28 oil leaks occurred on our electricity network, three of which were over 100 kg. There were no large oil leaks or environmental impacts caused by oil leaks. The rarity of oil leaks was due to favourable weather conditions and the decreasing number of exposed to the weather pole-mounted transformers as a consequence of the network development measures.

In 2016, we began a programme to overhaul pole-mounted transformers in groundwater areas with the aim of minimising the risk of the groundwater becoming contaminated by oil leaks. We are replacing all pole-mounted transformers in groundwater areas with park transformers equipped with oil recovery vessels. From 2016 to 2018, we removed approximately 1,050 pole-mounted transformers from groundwater areas, and we plan to remove the remaining 350 pole-mounted transformers from groundwater areas by the end of 2019.

Oil Spills and Soil Decontamination

	2018	2017	2016
Number of significant (≥100kg) oil spills	3	1	7
Number of oil spills in total	28	29	34
Cost of treatment of oil spills* (EUR 1,000)	168	174	210
Volume of decontaminated soil* (tonnes)	179	226	447

*Partly estimated

ENVIRONMENTAL GOALS

We aim to continuously increase the positive effects we have on the environment, improve the energy and material efficiency of our operations, reduce harmful environmental impacts and recycle used material more efficiently.

In 2019, our environmental activities will focus on climate change from the perspectives of evaluating climate impacts and making preparations for such impacts.

In 2019, we aim to put the finishing touches on the programme to overhaul pole-mounted transformers in groundwater areas. The number of oil leaks will decrease as our network improvement programme progresses.

We also strive to increase the rate at which dismantled network components are recycled, and we are working with Kuusakoski towards this goal.

The key environmental goals for 2018 are shown in the corporate responsibility goals table, and our environmental goals are listed under the Environment section.

In order to reach our environmental goals and succeed in reducing environmental hazards, we are training our own employees and those of our contractors.

Personnel

We employ in our projects about 1,000 people directly and 4,000 people indirectly in Finland.

Our success is based on competent and committed employees who are healthy and satisfied with their work. Last year, we invested in employee well-being, competence development, and leadership and corporate culture development to support this.

ACHIEVEMENTS IN 2018

- ✓ LAUNCHING THE DEVELOPMENT OF AN EMPLOYEE PERFORMANCE MANAGEMENT MODEL
- ✓ CARUNA ACADEMY’S LECTURES ARE OPEN FOR ALL EMPLOYEES
- ✓ WELL PERCEIVED REMOTE WORKING OPPORTUNITIES



EACH CARUNA EMPLOYEE USED AN AVERAGE OF

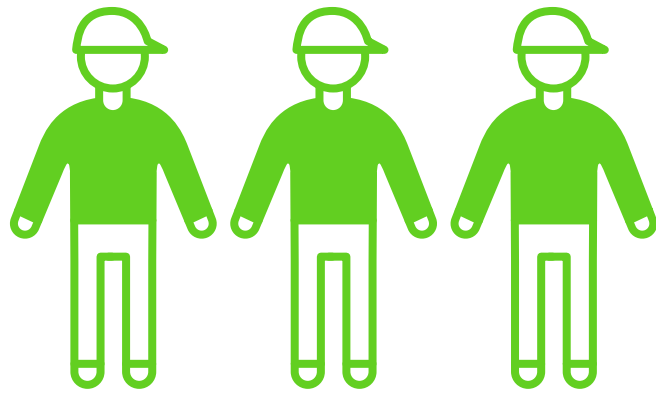
22

HOURS FOR TRAINING



EMPLOYEE ENGAGEMENT INDEX

72/100



TRAINING FOCUSED ON POWER ENGINEERING, PROJECT MANAGEMENT AND SAFETY

THE GREAT PLACE TO WORK CONCEPT TO IMPROVE CORPORATE CULTURE



In Caruna’s business model, contractors and other suppliers play a key role in building and maintaining the electricity network.

PERSONNEL KEY FIGURES

No significant changes occurred in the number of Caruna personnel in 2018. The employee turnover rate was 6.6% in 2018. We hired 32 new permanent employees and 13 fixed-term employees (employment contracts at year-end). Of all the employment contracts, 19 (6.6%) were fixed-term and 2.8% were part-time.

We employ some 20 fixed-term summer interns every year to perform various tasks. They stand in for regular employees taking their summer holidays, work in projects or compile material for theses or final year projects. In addition, Caruna had 26 temporary agency workers at the end of 2018. They work in customer service and documentation positions as well as in IT projects in busy periods.

In Caruna’s business model, contractors and other suppliers play a key role in building and maintaining the electricity network. We employ in our projects about 1,000 people directly and 4,000 people indirectly in Finland.

Employee Turnover

	Number	Share of all employees (%)
New employees in total*	45	16
Gender structure of new employees		
Share of women	18	6
Share of men	27	9
Age structure of new employees		
Under 30 years of age	17	6
30–50 years of age	25	9
Over 50 years of age	3	1
All discontinued employment contracts (excl. summer interns)	30	10
Discontinued permanent employment contracts	24	8**

*Employees hired during the year and with an employment contract at year-end, incl. fixed-term contracts.
**Permanent employment contracts discontinued during the reporting period divided by the total number of personnel at the end of the year (Turnover of permanent employees (%)).

Employee Key Indicators

	2018	2017	2016
Total number at the end of year	289	276	273
Number on average	289	274	276
Age structure of the employees, %			
Under 30 years of age	19	21	-
30–50 years of age	58	58	-
Over 50 years of age	23	21	-
Employee turnover* (%)	8.3	8.7	5.9
Number of fixed-term employment contracts**			
Men	8	-	-
Women	11	-	-
Number of part-time employment contracts**			
Men	7	-	-
Women	1	-	-
Share of fixed-term employment contracts (%)	6.6	8.3	6.6
Share of part-time employment contracts (%)	2.8	5.5	5.1
Women in workforce (%)	40	40	40
Women in governing bodies (%)	25	12.5	12.5
Governing bodies age structure (%)**			
Under 30 years of age	0	-	-
30–50 years of age	62	-	-
Over 50 years of age	38	-	-
Share of employees under collective agreements (%)	91	92	91
Share of employees entitled to performance appraisals (%)	100	100	100
Employee average age	40	39	39
Employee engagement index (0–100)	72	68	65
Number of training hours per person***	22	24.5	31.5
Salaries and wages (EUR 1,000)	19,231	16,681	17,757

*Turnover describes the percentage of employees departing on their own initiative.
**New indicator taken in use in 2018.
***Hours per person-year.

The survey showed that our strengths are excellent team spirit and sense of community and pride in our work and our team.

JOB SATISFACTION

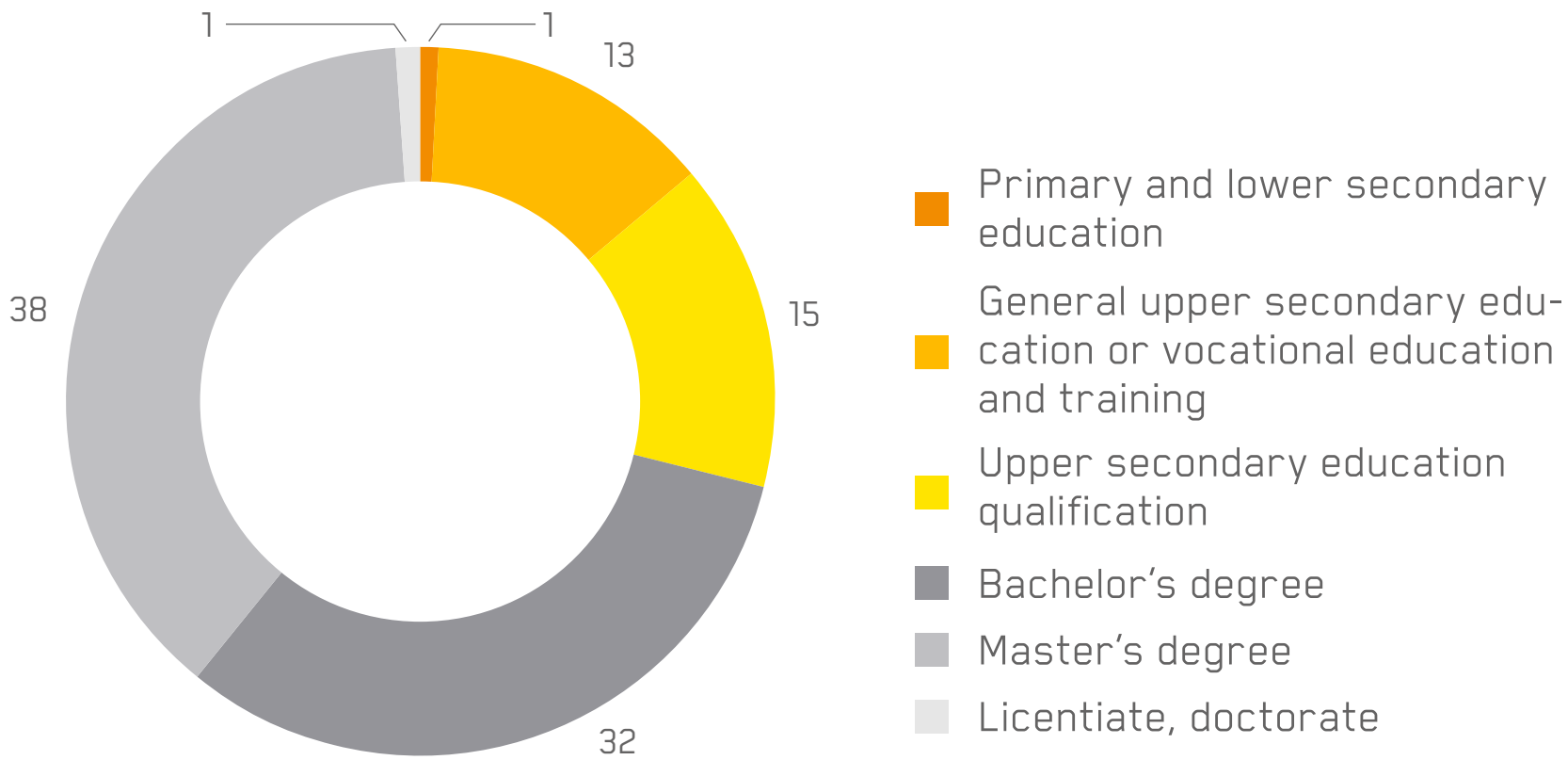
We regularly measure the job satisfaction and engagement of our employees. This was the first time that our extensive annual employee survey was conducted in accordance with the Great Place to Work concept. We also completed three brief Pulse surveys. The surveys gave our employees the opportunity to propose development actions and provide open feedback on matters affecting their job satisfaction.

The Great Place to Work survey consists of two parts: the Trust Index Employee Survey and the Culture Audit Management Questionnaire. The survey showed that our strengths are excellent team spirit and sense of community and pride in our work and our team. Our employees value the great working environment and flexible working arrangements. However, there is room for improvement in how tasks are coordinated and how we communicate about the direction in which the company is going. The survey indicated that we should improve our feedback culture and provide more opportunities to participate in decision making. According to the survey, the employee engagement index has increased significantly.



Caruna’s change agents help turn our values and strategy into practices.

Educational background of employees (%)



At the same time with the employee survey, we also launched a corporate culture development project, which will continue in 2019. The project is carried out together with a partner organisation, and it will involve a large number of employees through a survey for feedback and ideas as well as interviews and group exercises.

In 2017, Caruna’s values were revised in collaboration between management and employees to support the company’s new strategy. The implementation of the strategy and values continued in 2018. Supervisors and several change agents were trained in change leadership, and their project management skills were supported through coaching workshops and a training day for supervisors.

WELL-BEING AT WORK

Caruna contributes to the working capacity of its employees in several ways. We continued our fruitful cooperation with our occupational health care partner Terveystalo. A health survey and health interviews targeted at all

Competence and capability development was one the key themes in employee development.



employees gave us a good understanding of the current level of wellbeing and what should be improved. The results show that the health and wellbeing of our employees are very good overall. Those who have higher health risks are supported with targeted measures, such as lifestyle courses during which they receive both group and personal guidance in adopting healthier exercise and dietary habits. Our occupational health action plan was rewritten to better support preventive occupational health activities. Occupational health care is complemented by the comprehensive compensation policies of the Enkemi Insurance Fund.

We offer our employees flexible working hours, remote working opportunities and home care services for sick children. To maintain working capacity, we also offer the opportunity for part-time sick leave and similar rehabilitation measures that promote and lengthen careers. As an alternative to early retirement, we can offer part-time employment. When employees retire, we ensure the transfer of their knowledge in advance through training and recruitment projects.

Our well-being at work team coordinates the wishes of employees and strives to bring good energy to each working day with a wide range of services. In 2018, the most popular options included sports, cultural and commuting benefits, activities at our own gym, Pilates, bicycle maintenance and cycling events, theatre visits and Firstbeat assessments.

Equality is important to us. We do not allow any discrimination on grounds of race, religion, political views, gender, age, sexual orientation, disability or family situation. Every year, we analyse pay structures and any gender-based differences in them and take corrective measures where necessary. The activities are based on Caruna's equality plan.

In accordance with change security legislation, Caruna pays for training or education promoting employment when employees are made redundant. The content and value of training or education are defined on a case-by-case basis in an employment plan. Examples include job search training and vocational training. Depending on the situation, employees who are made redundant can also be given cash support.

Furthermore, employees laid off for financial and production-related reasons are offered occupational health services as per the occupational health care agreement until they are employed again. However, these services are only provided for up to six months after the employee's obligation to work has ended.

EMPLOYEE DEVELOPMENT

We want to offer our current and future employees a good place to work and develop as skilled workers, experts or managers. In 2018, each Caruna employee used an average of 22 hours for training. Internal career change opportunities, the job rotation programme Switch and job shadowing opportunities continued to be used in 2018.

Competence and capability development was one the key themes in employee development. Caruna's common competences and management competences were updated to support transformation and performance management. Competence areas were defined to support strategy implementation and business development. The adoption of competences was ensured in team and performance discussions.

In developing supervisory work, the focus was on change leadership and coaching, and supervisors were also offered coaching in a peer support

group. Presentation and dialogue coaching continued to be popular. The project management training for the energy sector, launched in 2017 together with partners, was also popular.

We prioritise safety and the environment in everything we do, and also emphasise them in our numerous training sessions. Other training themes included electrical engineering, occupational safety, supervisory work and leadership. The Caruna Academy concept was further developed. The Academy’s lectures are open for all employees, and they provide insights into Caruna’s business, the industry, theses and final year projects completed for the company, and wellbeing at work themes.

Employee Training Hours

	2018	2017	2016
Average training hours for all employees per person	22	24.5	31.5
Average training hours for office workers per person	19	22.4	33.9
Average training hours for senior workers and management per person	24	26	29
Average training hours for women per person	14	26	–
Average training hours for men per person	26	23	–

HIGHLIGHTING COMPETENCE

The Caruna Talent model is a key tool for employee development that helps us identify the skills and talent that are crucial for the company’s future. The model focuses on strengths, development opportunities, the quality of feedback and continuous dialogue. The outcome is an overall understanding of the competence areas that need to be developed, as well as concrete development plans whose realisation we monitor regularly.

In accordance with Caruna’s employee performance development model, we continued to emphasise one-on-one discussions between supervisors and employees that take place regularly but following a flexible cycle, along with

performance appraisals and feedback provision that support the employee’s comprehensive performance, development and well-being at work. We continued to encourage individuals to be active in developing their responsibilities and skills.

We launched the development of an employee performance management model and a system to support it in 2018. The model, which will be called ‘success management’, will be implemented in 2019. Compared to before, we will emphasise continuous feedback, ensuring competence development and comprehensive performance appraisal (i.e. feedback for success).

REMUNERATION PRINCIPLES

For us, remuneration is an approach that supports occupational well-being and includes both material and immaterial benefits. Caruna’s remuneration principles include fairness, transparency and competitiveness. We use categorised pay grades based on a competence classification to ensure remuneration that is fair but is also influenced by employee performance. Our policy is to offer competitive remuneration, and we annually participate in pay studies that provide information about developing remuneration.

Remuneration is determined by an individual’s performance and the achievement of the company’s strategic targets. All Caruna employees are covered by our performance bonus system, which is based on annual company, team and personal targets.

Caruna’s remuneration principles include fairness, transparency and competitiveness.

Procurement

Caruna has a centralised procurement and purchase organisation that runs professional tendering processes and takes care of supplier management.

We work with reliable, carefully selected contract, service and material partners. We regularly monitor how our contractual partners operate and ensure that they meet the applicable requirements.

Our procurements comply with the Finnish Act on Public Procurement in Special Sectors (1398/2016). Caruna’s own corporate responsibility criteria supplement the procurement requirements, in addition to the Act and other regulations. Caruna has a centralised procurement and purchase organisation that runs professional tendering processes for building, network materials, goods and service providers and takes care of supplier management.

ACHIEVEMENTS IN 2018

PREPARE THE DESCRIPTIONS OF THE PROCUREMENT CHAIN AND PROCUREMENT PRACTICES

WE HELD A SUPPLIER EVENT FOR NETWORK BUILDERS - APPR. 500 PEOPLE ATTENDED

COMPLETE THE CORPORATE RESPONSIBILITY EVALUATIONS OF KEY SUPPLIERS

SURVEYS PROVIDED US WITH MORE THAN

180

IDEAS FOR PROJECT MONITORING

WE CONDUCTED

6

SUPPLIER AUDITS

WE COMMISSIONED CORPORATE RESPONSIBILITY EVALUATIONS FOR

16

OF OUR CONTRACTUAL SUPPLIERS

WE HELD THE FIRST

1.

CARUNA CORPORATE RESPONSIBILITY DAY



CARUNA’S SUPPLY CHAIN

We carry out construction and repair work on the electricity network with the help of contractors and their subcontractors. In addition, we use several service providers, including a project management supervision partner, to ensure that we have adequate expertise and capacity to monitor construction and maintenance work on the electricity network.

At Caruna, we are responsible for the general planning of the electricity network based on network reliability, age and maintenance analysis. Contractors draw up terrain and electrical plans in accordance with Caruna’s instructions. Caruna approves the plans, contractors build the electricity network, and the network is deployed in collaboration with contractors.

In 2018, Caruna had 13 main contractors for network construction work and an additional 560 subcontractors. Because our projects are so large, our main contractors are all large and medium-sized companies. Caruna’s contractors have reported that foreign workers account for less than 1% of their total workforce.

Procurement key indicators

	2018	2017	2016
Working ours reported by network contractors* (million hours)	2.56	2.09	1.94
Number of supplier audits**	6	6	5
Share of audited members of new suppliers**	>80%	-	-
Number of main contractor companies	13	13	13
Number of subcontractor companies	560	480	238

*Includes the working hours of Caruna’s main contractors and their subcontractors. Subcontractor working hours are partly estimates.
**New indicator taken in use in 2018.

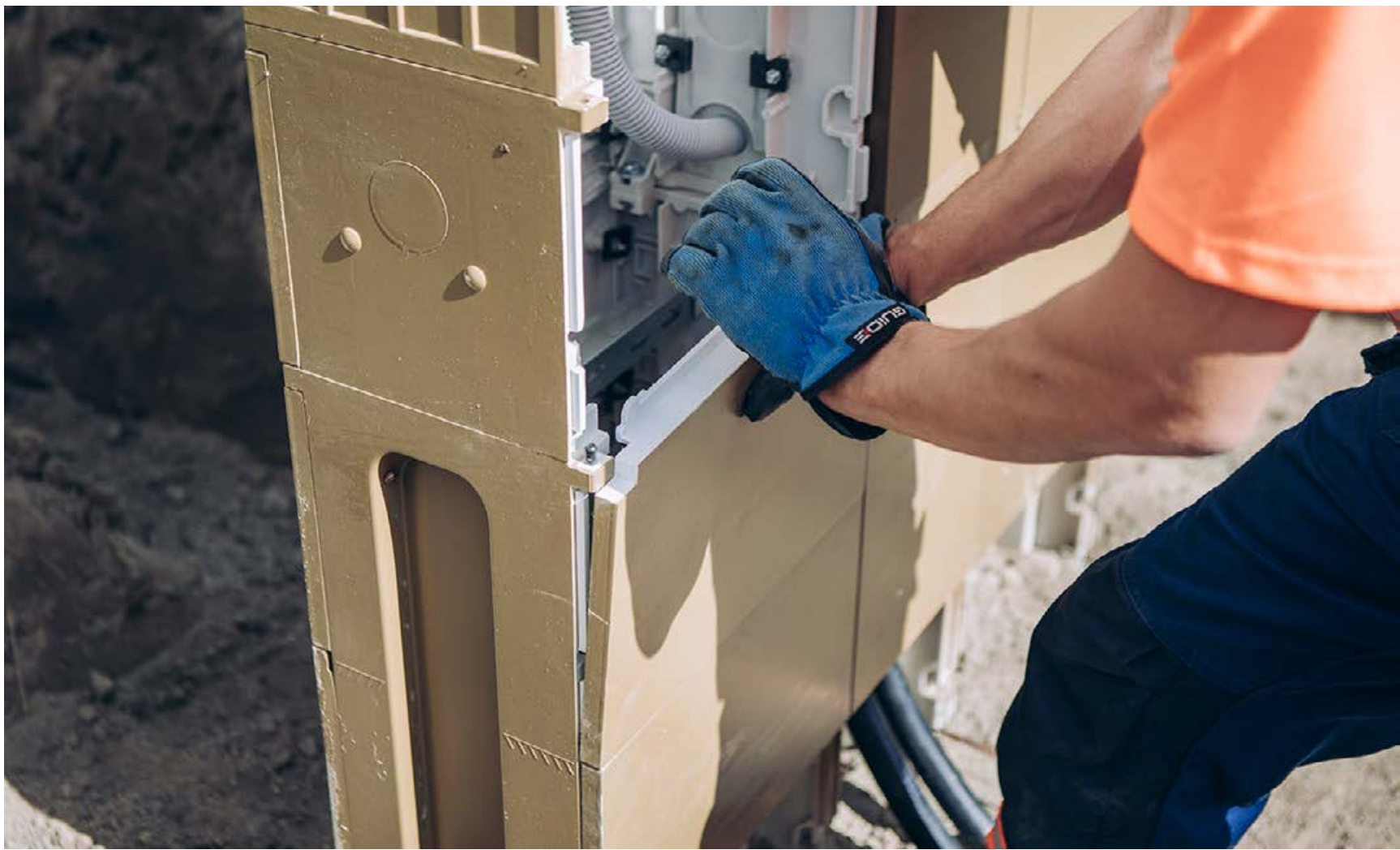
Contractors may use their own subcontractors to fulfil their contractual obligations, providing that Caruna has approved the subcontractor. Subcontractors must comply with the same principles and requirements as the main contractors, and they must commit themselves to Caruna’s instructions and obligations. We audit contractual suppliers according to an annual auditing plan.

The provider in charge of project management supervision monitors operations during construction and also conducts inspections during the warranty period. All deviations are documented and photographed using mobile devices to ensure clear reporting. In addition, we inspect the cable installation depth to ensure that cables have been installed in compliance with requirements and that the environment is tidy once the construction project is complete.

In 2018, we invited the personnel working with project management supervision on every Caruna construction site to respond to an electronic survey on the topic of project monitoring. Based on the responses, we held a development workshop, which was attended by 55 people from the project supervision company, contractors and Caruna’s employees. The topics on the agenda included best practices, consistent operating methods, collaboration, communication, systems, resources and timetables. More than 180 development ideas were obtained. Development measures were agreed with the participants, and the most important of these included ensuring consistent project supervision, timely inspections and sufficient resources.

Subcontractors must comply with the same principles and requirements as the main contractors, and they must commit themselves to Caruna’s instructions and obligations.

We consider financial, social and environmental responsibility when we select suppliers and prepare contracts, and we take care of all of these throughout the contractual period.



Our operations have a substantial direct and indirect economic impact through procurements. Our projects employ thousands of people, directly or indirectly, in various parts of Finland.

In spring 2018, we held a supplier event for network builders in Helsinki. The aim was to share as much information as possible with contractual suppliers and subcontractors on Caruna’s operations and on important topics related to network construction. Approximately 500 people attended the event, representing contractors, subcontractors and material suppliers. The topics on the agenda were customer satisfaction, occupational safety, construction quality and corporate responsibility. In addition, some material suppliers, an ICT provider and our recycling partner spoke about their activities.

MONITORING SUPPLIERS

Caruna’s supplier management focuses on the comprehensive management of relations between Caruna and its suppliers. We aim to develop operating models and operational activities together throughout the term of the contract. We regularly monitor how all of our partners operate and ensure that they

fulfil the conditions of the contract. Monitoring meetings are attended by people related to the supplier or project.

Caruna’s suppliers are divided into three categories. We work in close collaboration with all suppliers. We hold development meetings with our largest and most critical contractual suppliers four times a year with the aim of making operations better and more efficient during the contractual period and ensuring that the collaboration between the companies goes smoothly. Caruna’s procurement organisation is responsible for monitoring any areas for development and the implementation of measures.

CORPORATE RESPONSIBILITY IN THE SUPPLY CHAIN

We aim to continuously improve the transparency and management of our supply chain. Corporate responsibility is a part of our contracts and supplier management. We consider financial, social and environmental responsibility when we select suppliers and prepare contracts, and we take care of all of these throughout the contractual period.

Corporate responsibility requirements

We include strict quality, safety and environmental requirements in our contracts with suppliers, and every supplier must commit to these requirements. Contracts are based on Caruna’s contract practices, which include quality monitoring and risk management.

Every supplier must also commit to Caruna’s Supplier Code of Conduct, which obliges contractors to comply with Finnish laws and regulations. This means that every supplier must comply with at least the minimum terms of employment and working conditions set out in nationally binding collective agreements.

The corporate responsibility requirements are included in our competitive tendering documentation. The requirements apply to topics such as financial stability, working conditions and contractor’s obligations, as well as environmental factors such as recycling.

We held our first corporate responsibility day in autumn 2018 on the premises of Kuusakoski Oy, our recycling partner. The theme of the corporate responsibility day was recycling and sorting material dismantled from the network on the work site. Approximately 20 people attended the event, including contractors’ recycling contact people and material suppliers with an interest in the topic. The aim of the day was to educate the participants in more depth

on the topic of sorting waste on work sites, inspire discussion and show what happens to network material when our recycling partner processes it. During the day, we received a lot of good ideas for improving sorting practices.

Finnish language skills are required for Caruna’s network construction work for occupational safety reasons. Legislation sets requirements for the use of foreign workers. Caruna treats service and material providers equally and does not discriminate, carefully applying the EU-level act on procurement in special sectors.

We exclude bidders from competitive tendering processes if they have been convicted of any crimes stated in the act on procurement in special sectors.

Supplier audits

In 2018, we audited suppliers according to an annual auditing plan. The audits were a part of the supplier management concept, and the aim was to monitor and develop the most important contractual suppliers we use.

In 2018, we conducted six supplier audits focusing on two main contractors, one material supplier, two ICT service providers and our recycling partner. The focal areas of the audits were stakeholders and the operating environment, management and leadership, competences and resources, corporate responsibility and sustainable development, management of deviations, data management and communications, and contractual obligations and projects.

A small number of deviations were found during the audits. Corrective measures are underway to address the identified deviations. In the past, we have conducted re-audits, but this was not deemed necessary this year.

So far, we have audited Caruna’s 17 largest contractual suppliers. Together, these 17 suppliers account for more than 80% of Caruna’s procurement value.

Our most important contractual suppliers have been audited once, and the following round of audits will focus on corporate responsibility. The sub-areas are administration, society and finance, personnel and safety, the environment, and responsible procurement.

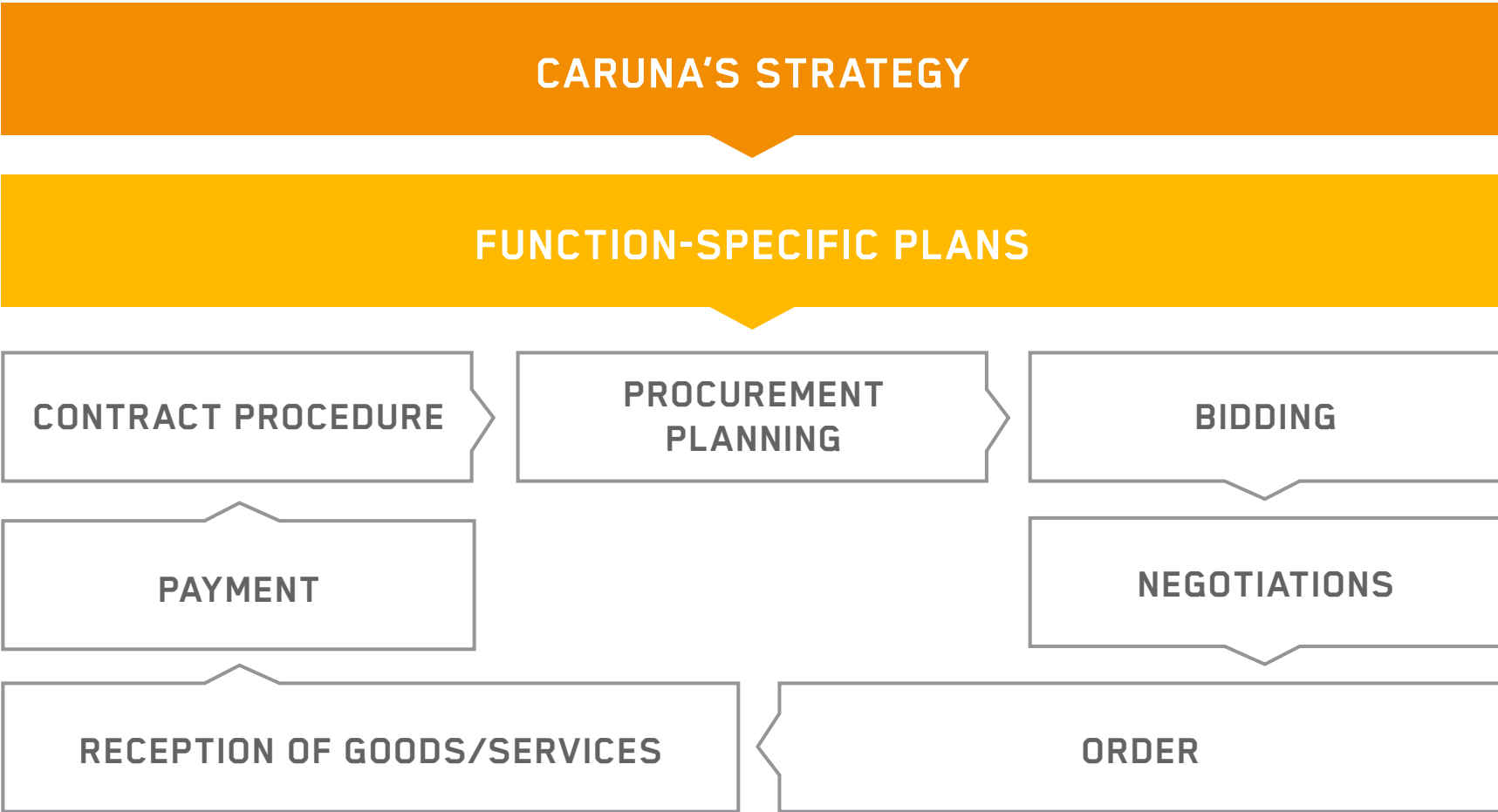
In 2018, we investigated and evaluated the HSEA practices (occupational safety, environment and quality) and the standards of monitoring used by 9 of our contractors, as well as how the contractors have documented their own audits. The evaluations focused on documents related to occupational

safety, the environment and quality assurance, as well as the work sites where the contractors were active. The purpose of the HSEA evaluations was to ensure that operations on work sites corresponded to the HSEA documents for each project, that instructions were available on the work site and that the personnel on the work site had understood the instructions. The contractors who had performed commendably were rewarded.

We commissioned corporate responsibility evaluations on 16 of our contractual suppliers by asking the suppliers to complete a self-assessment survey. The evaluation was based on the ethical operating instructions for Caruna’s suppliers and selected corporate responsibility themes. The results were evaluated and, as a result, we obtained an overview of the corporate responsibility work, best practices and areas for development at our contractors and material suppliers. The aim is to develop corporate responsibility together with our suppliers, both at company level and across the entire sector.

The audits are a part of the supplier management concept, and the aim is to monitor and develop the most important contractual suppliers we use.

Caruna’s procurement process



We select all material suppliers without any form of discrimination and in accordance with the requirements of competitive tendering processes, via Caruna’s electronic procurement system.



CARUNA’S PROCUREMENT PROCESS

Caruna’s competitive tendering and contract management process is digital. We handle the entire process, from preparing contract details to competitive tendering and finalised contracts, via an electronic procurement portal, as for material orders.

Suppliers can see the competitive tendering processes on the [Tarjouspalvelu.fi](https://tarjouspalvelu.fi) website, which also forwards data to the national HILMA notification channel and the EU-level TED portal. The electronic channel is free for suppliers to use. The procurement contracts are also on an electronic system.

We have also made use of electronic auctions, as permitted by the Act on Procurement in Special Sectors, for competitive tendering processes for items such as cable cabinets.

Caruna’s purchases are made using the IFS purchasing tool. Purchases are coordinated by Caruna’s procurement department, which provides control and transparency for the order-to-payment process.

MATERIAL PROCUREMENT

In terms of material procurement in 2018, we progressed in accordance with our previously specified procurement strategy.

The network construction procurement strategy defines the focal areas for the forthcoming years, as well as the key electricity network materials that Caruna is responsible for procuring. When Caruna is responsible for the largest material purchases, it has greater control over material quality and corporate responsibility requirements, as well as cost efficiency. It also makes monitoring and reporting practices clearer.

The quality, safety and environmental aspects of the materials used by Caruna are taken into careful consideration in the competitive tendering phase, the deployment phase and retrospective factory audits.

We need materials for building and renovating the electricity network, such as cables, transformers, substations and cable cabinets. The key raw materials used for network construction materials are aluminium, copper and steel. As a rule, the new electricity network is built using new materials.

In 2018, deliveries of the main network construction materials (substations, distribution transformers, cables) went well despite the large quantities involved. Deliveries of cable cabinets – a new category of material – began in summer 2018. Following some minor quality and delivery challenges, we have achieved a normal delivery schedule with these products. Deliveries of reactive power compensation reactors (20 kV and 110 kV) for Caruna’s substations began and will continue in forthcoming years.

We use an electronic ordering interface for the key network construction materials. We select all material suppliers without any form of discrimination and in accordance with the requirements of competitive tendering processes, via Caruna’s electronic procurement system.

Kuusakoski Oy is responsible for recycling the materials dismantled from Caruna’s network, taking care of the appropriate processing and recycling of the materials.

[Read more about the use of materials in the Environment section ➔](#)



REPORTING PRINCIPLES AND GRI

- REPORTING PRINCIPLES
- GRI CONTENT INDEX

Reporting principles

REPORT DESCRIPTION

This is the fourth time that Caruna reports on the corporate responsibility of its operations. In 2018, Caruna transitioned to reporting in accordance with the GRI Standards. Caruna’s Annual Report includes a review of economic performance. This Annual Report covers Caruna’s operations from 1 January to 31 December 2018. Caruna reports on its operations on an annual basis. The next report will be published in spring 2020.

DEFINING THE REPORT CONTENTS

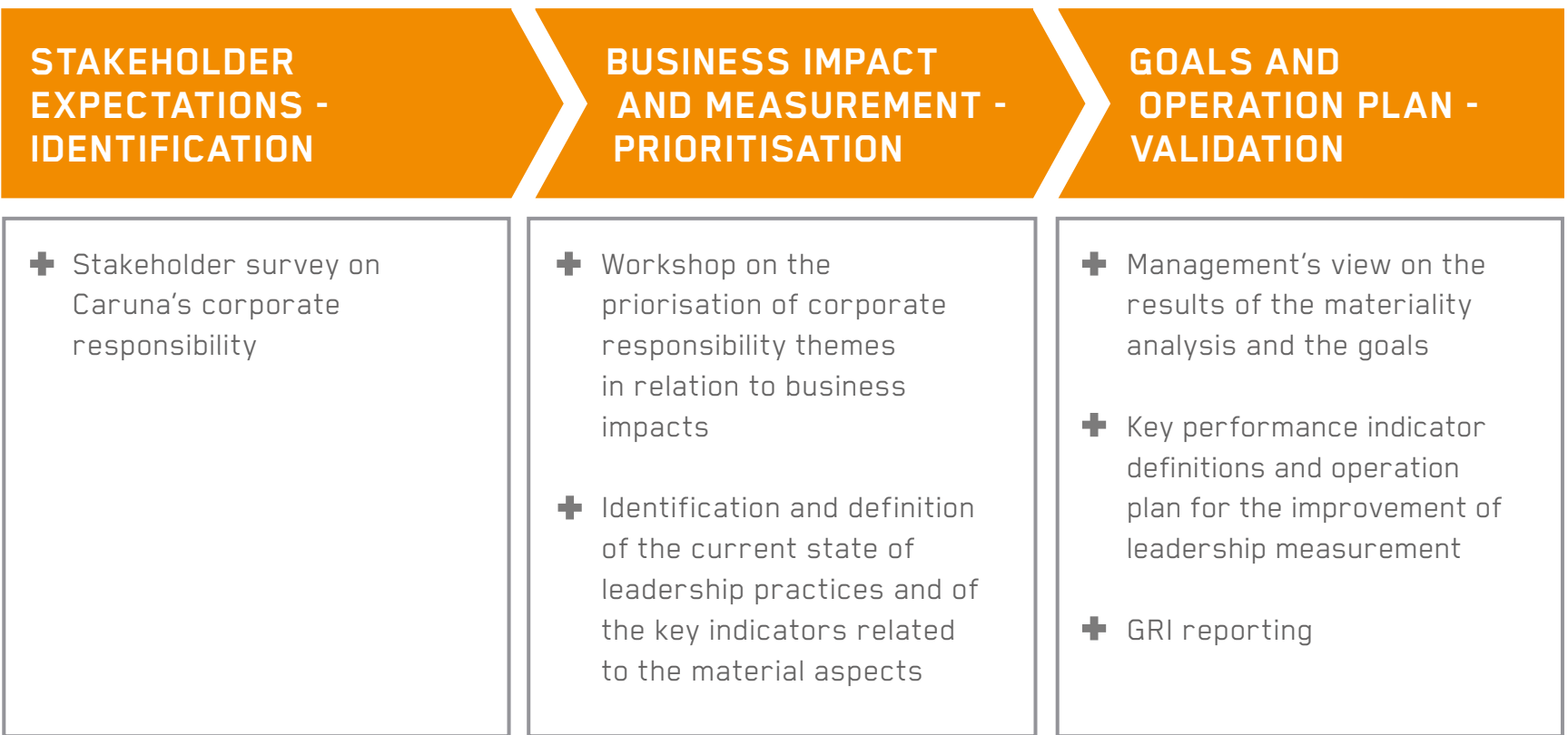
Caruna’s sustainability report for 2018 complies with the Global Reporting Initiative’s GRI Sustainability Reporting Standards. The report has been prepared in accordance with the guidelines of the GRI Standards and its Core option. The report covers the standard disclosures of the GRI Standards and the Electric Utilities Sector Disclosures as well as the sustainability topics considered material in Caruna’s operations.

In summer and autumn 2015, Caruna identified the key areas of its corporate responsibility. The process covered the economic, environmental and social aspects of the activities regarding both stakeholders and Caruna’s business operations. We began by defining internally the framework for Caruna’s operations from the perspective of corporate responsibility. This stage also involved identifying a wide range of themes related to sustainability. The second stage consisted of a materiality assessment for which we asked both internal and external stakeholders to share their views on Caruna’s operations, sustainability and key development areas.

The stakeholder survey covered corporate customers, private customers, contractors and other partners, municipal decision-makers, government authorities, regional administration, rescue services, higher education institutions, industry organisations and Caruna’s employees.

The results of the stakeholder survey were processed by Caruna’s HSE development team, Management Team and HSE Committee, which is appointed by the Board of Directors. At the last stage of the process, we summa-

Materiality assessment process



risied and grouped the sustainability themes and topics into **four areas**.

In 2018, we updated the sustainability priorities and material topics. They will be adopted in the 2019 sustainability programme and report.

GRI MATERIAL TOPICS AND TOPIC BOUNDARIES

The companies included in Caruna’s consolidated financial statements are listed in the introduction to the Annual Report. The data provided in the sustainability report covers Caruna Group’s companies and business operations. Caruna’s material topics and their boundaries are described on the next page.

GRI topic boundaries

Caruna's priorities	Material GRI topics	Topic boundaries
Reliability of supply Investments in network development Emergency preparedness and quick fault repair	Availability of electricity and reliability of supply (EU) System efficiency (EU) Research and development (EU) Disaster/emergency planning and response, the related plans and training (EU)	Caruna's own operations, customers and society
Safety Safety of employees and contractors Network and public safety	Occupational health and safety Customer health and safety (EU)	Caruna's own operations, supply chain, customers and society
Customers and society Customer satisfaction Non-discrimination of customers and reasonable pricing Local economic impacts Stakeholder engagement	Economic performance Indirect economic impacts Caruna's own topic: Non-discrimination of customers Customer privacy	Caruna's own operations, customers and society
Responsible procurement Procurement practices and equal treatment of contractors Responsibility in material procurement Working conditions of subcontractors	Supplier environmental assessment Supplier social assessment	Caruna's own operations, contractors and supply chain
The environment Minimising environmental damage Sustainable and effective use of natural resources Environmental safety Impacts on land use and landscape	Materials Energy Emissions Waste water and waste Biodiversity Compliance	Caruna's own operations and contractors
Personnel Good corporate governance Expertise Well-being at work and occupational health Equality	Employment Training and education Diversity and equal opportunity Caruna's own topic: Well-being at work	Caruna's own operations
Openness, ethical business principles and corporate governance	Anti-corruption Anti-competitive behaviour Compliance	Caruna's own operations

GRI Content Index

Disclosure	GRI content	Location	Comments
GRI 102: General Disclosure			
Organisational profile			
102-1	Name of the organisation	Corporate governance, p. 3, GRI Content Index	Caruna Networks Oy
102-2	Activities, brands, products, and services	Value creation, p. 14	
102-3	Location of headquarters	Back cover	
102-4	Location of operations	Caruna in brief, p. 4	
102-5	Ownership and legal form	GRI content index https://www.caruna.fi/en/caruna/about-caruna	Caruna is owned by Finnish employment pension companies Elo (7.5%) and Keva (12.5%), as well as international infrastructure investors OMERS Infrastructure (40%) and First State Investments (40%).
102-6	Markets served	Customers, p. 27	
102-7	Scale of the organisation	Caruna in brief, p. 4 Electricity markets, p. 16 Electricity distribution and Caruna's economic impacts, p. 18–20 Personnel, p. 54 Financial Statements, p. 5	
102-8	Information on employees and other workers	Personnel, p. 54	Partially reported.
102-9	Supply chain	Procurement, p. 59	
102-10	Significant changes to the organisation and its supply chain	Financial Statements, p. 6	
102-11	Precautionary principle or approach	Corporate governance, p. 13	
102-12	External initiatives	Stakeholders, p. 32 Safety, p. 40, 42 Environment, p. 45, 49	

Disclosure	GRI content	Location	Comments
102-13	Membership of associations	Stakeholders, p. 33 Safety, p. 42	
Strategy			
102-14	Statement from senior decision-maker	From the CEO, p. 5	
102-15	Key impacts, risks, and opportunities	Strategy, p. 8 Value creation, p. 14 Corporate governance, p. 13	
Ethics and integrity			
102-16	Values, principles, standards, and norms of behavior	Strategy, p. 8 Responsibility, p. 37	
Governance			
102-18	Governance structure	Corporate governance, p. 3–5	
102-20	Executive-level responsibility for economic, environmental, and social topics	Corporate governance, p. 5	
102-22	Composition of the highest governance body and its committees	Corporate governance, p. 6–9	
102-26	Role of highest governance body in setting purpose, values, and strategy	Corporate governance, p. 5	
Stakeholder engagement			
102-40	List of stakeholder groups	Stakeholders, p. 31–34	
102-41	Collective bargaining agreements	Personnel, p. 54	
102-42	Identifying and selecting stakeholders	GRI content index	Caruna’s stakeholders include a wide variety of parties that utilise network services and participate in their provision and affect their operation, as well as the surrounding society in a broader capacity.
102-43	Approach to stakeholder engagement	Stakeholders p. 31–34	
102-44	Key topics and concerns raised	Stakeholders p. 31–34	
Reporting practice			
102-45	Entities included in the consolidated financial statements	Corporate Governance, p. 3	

Disclosure	GRI content	Location	Comments
102-46	Defining report content and topic Boundaries	Reporting principles, p. 64	
102-47	List of material topics	Reporting principles, p. 65	
102-48	Restatements of information	GRI content index	No changes.
102-49	Changes in reporting	GRI content index	No significant changes.
102-50	Reporting period	Reporting principles, p. 64	
102-51	Date of most recent report	GRI content index	March 26, 2018
102-52	Reporting cycle	Reporting principles, p. 64	
102-53	Contact point for questions regarding the report	GRI content index	https://www.caruna.fi/en/contact
102-54	Claims of reporting in accordance with the GRI Standards	Reporting principles, p. 64	
102-55	GRI content index	GRI content index	
102-56	External assurance		The information in this report has not been externally assured.
GRI 103: Management Approach			
103-1	Explanation of the material topic and its Boundary	Reporting principles, p. 64–65	
103-2	The management approach and its components	Electricity markets, p. 16 Electricity distribution and Caruna's economic impact, p. 18–20 Customers, p. 30 Responsibility, p. 37–39 Safety, s. 40–44 Environment, p. 45–52 Personnel, p. 53, 55–57 Procurement, p. 58–62 Financial Statements, p. 7–8	
103-3	Evaluation of the management approach	Corporate governance, p. 11 Safety, p. 41–44 Environment, p. 48–52 Personnel, p. 55–57 Procurement, p. 59–62 Responsibility, p. 38	

Disclosure	GRI content	Location	Comments
Economic responsibility			
GRI 201: Economic Performance			
201-1	Direct economic value generated and distributed	Value creation, p. 14 Electricity distribution and Caruna's economic impacts, p. 18–20	Partially reported.
GRI 203: Indirect Economic Impacts			
203-2	Significant indirect economic impacts	Electricity distribution and Caruna's economic impacts, p. 18–20	
EU: Availability of electricity and reliability of supply			
		Reliability and security of supply, p. 24–25	
EU: System efficiency			
EU12	Transmission and distribution losses	Environment, p. 49	
EU: Research and development			
		Financial Statements, p. 5	
GRI 205: Anti-corruption			
205-2	Communication and training about anti-corruption policies and procedures	Responsibility, p. 39	Partially reported.
205-3	Confirmed incidents of corruption and actions taken	GRI content index	No cases.
GRI 206: Anti-competitive Behavior			
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	GRI content index	No violations.
Environmental responsibility			
GRI 301: Materials			
301-1	Materials used by weight or volume	Environment, p. 48	
GRI 302: Energy			
302-1	Energy consumption within the organisation	Environment, p. 48, 50	Partially reported.
302-4	Reduction of energy consumption	Environment, p. 45, 48–50	Partially reported.
GRI 304: Biodiversity			
304-2	Significant impacts of activities, products, and services on biodiversity	Environment, p. 45	

Disclosure	GRI content	Location	Comments
GRI 305: Emissions			
305-1	Direct (Scope 1) GHG emissions	Value creation, p. 14 Environment, p. 51	Partially reported.
305-5	Reduction of GHG emissions		Partially reported.
GRI 306: Effluents and Waste			
306-2	Waste by type and disposal method	Environment, p. 48	
306-3	Significant spills	Environment, p. 48, 52	Partially reported.
GRI 307: Environmental Compliance			
307-1	Non-compliance with environmental laws and regulations	GRI content index	No violations.
GRI 308: Supplier Environmental Assessment			
308-1	New suppliers that were screened using environmental criteria	Procurement, p. 59, 61	
Social responsibility			
GRI 401: Employment			
401-1	New employee hires and employee turnover	Personnel, p. 54	Partially reported.
EU17	Days worked by contractor and subcontractor employees involved in construction, operation & maintenance activities	Procurement, p. 60	
GRI 403: Occupational Health and Safety			
403-2 (2016)	Hazard identification, risk assessment, and incident investigation	Safety, p. 43	Partially reported.
EU18	Percentage of contractor and subcontractor employees that have undergone relevant health and safety training	Safety, p. 44	Partially reported.
GRI 404: Training and Education			
404-1	Average hours of training per year per employee	Personnel, p. 54	
404-2	Programs for upgrading employee skills and transition assistance programs	Personnel, p. 56	

Disclosure	GRI content	Location	Comments
404-3	Percentage of employees receiving regular performance and career development reviews	Personnel, p. 54	Partially reported.
GRI 405: Diversity and Equal Opportunity			
405-1	Diversity of governance bodies and employees	Personnel, p. 54	
GRI 414: Supplier Social Assessment			
414-1	New suppliers that were screened using social criteria	Procurement, p. 59, 61	
GRI 418: Customer Privacy			
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	GRI content index	One complaint from authorities.
GRI 419: Socioeconomic Compliance			
419-1	Non-compliance with laws and regulations in the social and economic area	GRI content index	No violations.
EU: Disaster/emergency planning and response			
		Reliability and security of supply, p. 25–26	
EU: Customer health and safety			
EU25	Number of injuries and fatalities to the public involving company assets	Safety, p. 41	
EU: Access			
EU28	Power outage frequency	Reliability and security of supply, p. 25	
EU29	Average power outage duration	Reliability and security of supply, p. 25	

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