ENG 11/2021

GREEN

for real

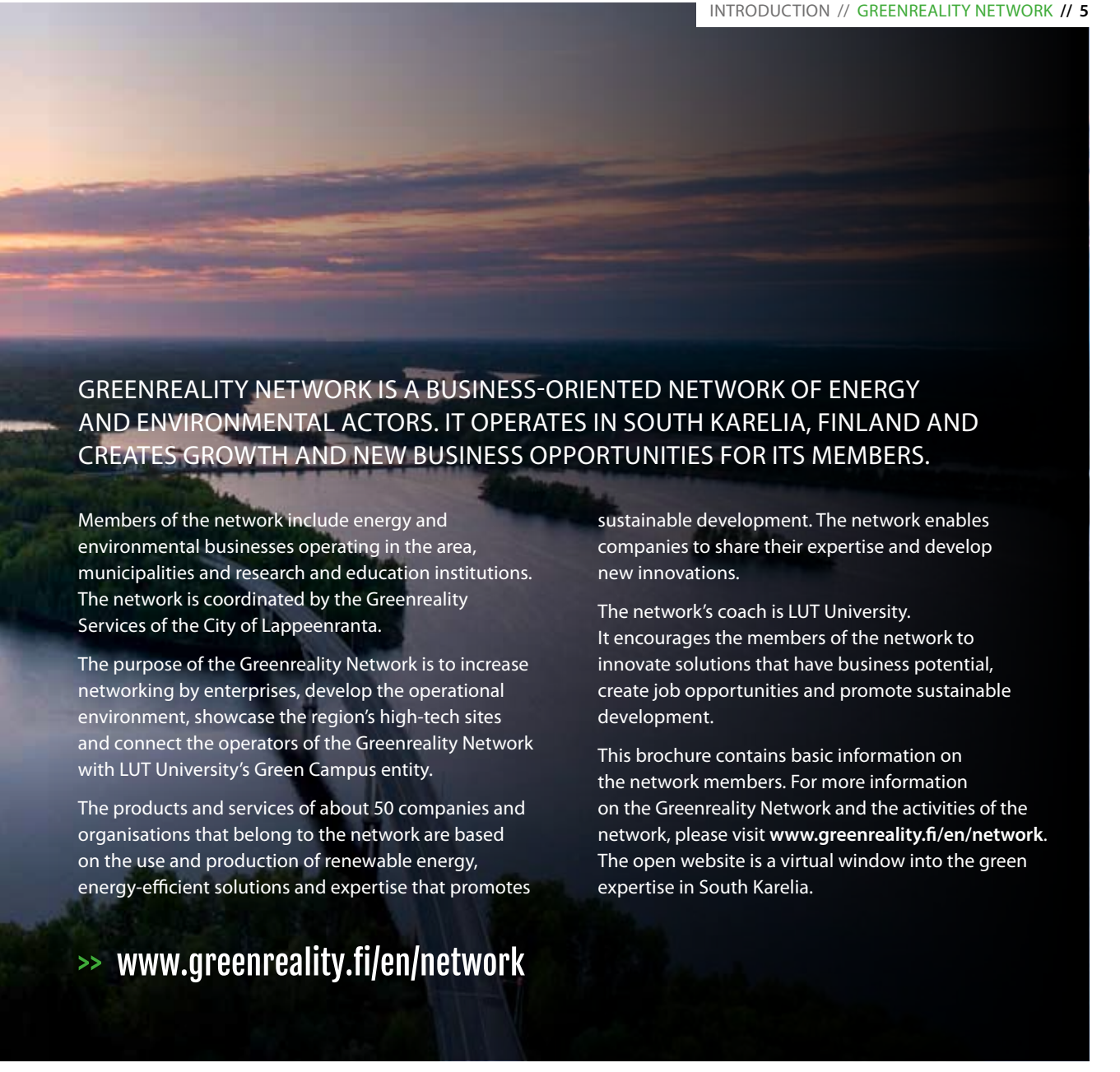
Greenreality

NETWORK

Contents

Jetro Matilainen

Ecological measures and new business operations



GREENREALITY NETWORK IS A BUSINESS-ORIENTED NETWORK OF ENERGY AND ENVIRONMENTAL ACTORS. IT OPERATES IN SOUTH KARELIA, FINLAND AND CREATES GROWTH AND NEW BUSINESS OPPORTUNITIES FOR ITS MEMBERS.

Members of the network include energy and environmental businesses operating in the area, municipalities and research and education institutions. The network is coordinated by the Greenreality Services of the City of Lappeenranta.

The purpose of the Greenreality Network is to increase networking by enterprises, develop the operational environment, showcase the region's high-tech sites and connect the operators of the Greenreality Network with LUT University's Green Campus entity.

The products and services of about 50 companies and organisations that belong to the network are based on the use and production of renewable energy, energy-efficient solutions and expertise that promotes sustainable development. The network enables companies to share their expertise and develop new innovations.

The network's coach is LUT University. It encourages the members of the network to innovate solutions that have business potential, create job opportunities and promote sustainable development.

This brochure contains basic information on the network members. For more information on the Greenreality Network and the activities of the network, please visit **www.greenreality.fi/en/network**. The open website is a virtual window into the green expertise in South Karelia.

>> www.greenreality.fi/en/network


The best solutions
are productised and
commercialised.

Creative approach to product development and environmental challenges

APILA GROUP'S OPERATIONS COMBINE MATERIALS WISDOM, PRODUCT DEVELOPMENT AND EXPERT ENVIRONMENTAL MANAGEMENT.

Circular economy business models are of interest to companies. The transition of materials to circular economy requires companies to rethink and renew their product design and knowledge of recycled materials and their interactions, while striving for profitable business.

We offer expert solutions to resource-wise product development at the regional and organisational level. Wise use of resources and product development save time and money for companies when products, processes and services are examined in accordance with the circular economy at the same time as when recycled materials, safety, usability and legislation matters are taken into consideration. Unnecessary experiments are not needed. Customers are interested in sustainably produced products. The resource efficiency of the company improves, the life cycle of products lengthens and the consumption of fresh raw materials is reduced. In addition, new business activities and regional business ecosystems can emerge around the side streams of product and material production.

This resource wisdom-based approach of ours has helped businesses to face the concrete challenges of a circular economy, to face the changing operational environment, and to move ahead alongside with the development of legislation related to the use of resources. The Apila Group has a lot of experiential and multi-disciplinary expertise that is directly applicable to meeting the needs of companies.

APILA GROUP IS A SPECIALIST IN THE CIRCULAR ECONOMY WITH A STRONG TEAM OF MATERIALS CHEMISTRY EXPERTS COMBINED WITH ENVIRONMENTAL EXPERTISE. APILA GROUP OY AB WAS FOUNDED IN 2006. THE COMPANY HAS OFFICES IN JOENSUU AND LAPPEENRANTA.

APILA GROUP

>> www.apilagroup.fi

Sustainability in real estate development

THE 15,000 M^2 OFFICE BUILDINGS IN VAPAUDENAUKIO AND THE ARMILANLINNA FUNCTIONALIST BUILDING PROVIDE FIRST-RATE FACILITIES FOR MORE THAN 70 COMPANIES, RIGHT IN THE HEART OF LAPPEENRANTA.

In Vapaudenaukio, you can find flexible office spaces equipped with modern facilities that can meet the needs of businesses with anything from one to over a hundred employees. The exquisite functionalist school located next to the railway station has now been renovated into modern business premises close to the best transport connections.

The office buildings in Vapaudenaukio have been designed with the aim of reducing energy consumption and carbon dioxide emissions, managing indoor conditions and easy adaptability. The property has a solar power system with the production utilised fully for the consumption needs of cooling and ventilation. The location supports the use of public transport and commuting by bicycle, and the proximity of services reduces the need for mobility and facilitates the everyday life of employees. The lobby and conference services and the restaurant in Vapaudenaukio are available to all.

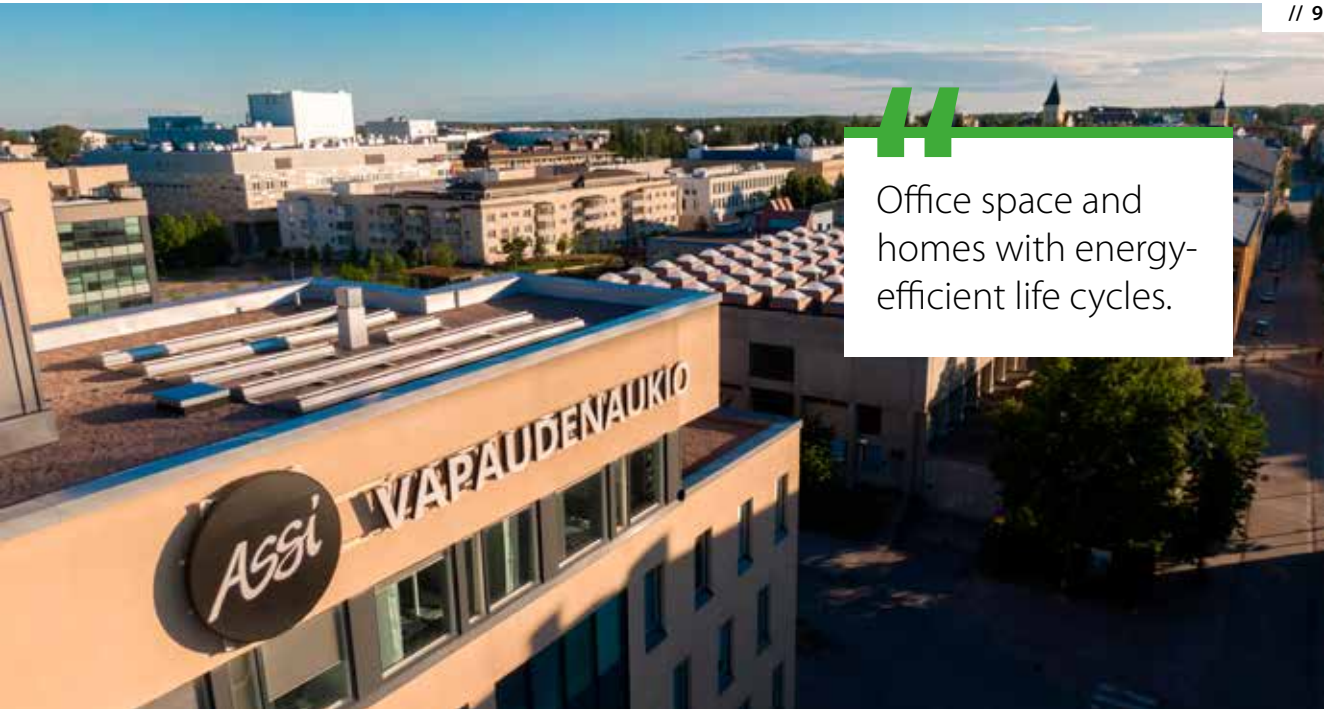
Assi Group has given new life to the 3,000 m^2 functionalist school of Armilanlinna as modern but history-rich business facilities. The location of Armilanlinna next to the railway station provides smooth mobility with train connections and is easily accessible by all means of transport. Geothermal heating and cooling are used effectively at Armilanlinna to manage the property conditions.

In addition to Vapaudenaukio and Armilanlinna, we lease city centre facilities in the Wilhunkulma commercial property. Its location on a pedestrian street provides premises especially for restaurant and service companies. For industrial operations, we have premises and lots at the industry hub in Muukonkangas, next to Highway 6.

ASSI GROUP OY IS A PRIVATE-SECTOR REAL ESTATE COMPANY BASED IN LAPPEENRANTA THAT LEASES VERSATILE OFFICE AND BUSINESS FACILITIES IN BUILDINGS IT OWNS IN THE CENTRE OF LAPPEENRANTA.

Assi

>> www.assigroup.fi



Office space and homes with energy-efficient life cycles.

One Aurelia® A400 turbine can generate enough energy to power almost 200 detached homes.

Aurelia Turbines

Gas turbines for hydrogen, too

AURELIA TURBINES MANUFACTURES SMALL, EXTREMELY EFFICIENT GAS TURBINES THAT CAN ALSO RUN ON HYDROGEN AND RENEWABLE FUELS.

Our turbines can use a variety of different gas and liquid fuels, including renewable sources – including hydrogen and renewable energy sources.

Because hydrogen produces zero emissions, it will now be used to generate heat and electricity. In addition to the production of electricity and heat, hydrogen is also needed to balance the fluctuations of wind and solar energy.

– Hydrogen gases burn too hot for use in conventional turbines. Their parts would melt. We have solved the problem with new technology, says **Matti Malkamäki**, CEO of Aurelia Turbines.

The turbine technology is based on the company's own innovations and the use of technology developed by the LUT University. In addition to this, development has also been carried out together with the German Aerospace Centre (DLR).

The gas turbines are designed specifically for the small-scale process industry, and their competitive advantage also lies in their high efficiency rate, which can exceed 40 per cent.

One Aurelia® A400 turbine can generate enough energy to power almost 200 detached homes. In addition to decentralised energy production, the gas turbines are also suitable for use in a number of sectors, such as food and drink, brewing, and industrial building materials.

Production was launched in Lappeenranta in November 2017. Turbine deliveries started in August 2020, and turbines will be delivered to different continents. The company's marketing is based in Central Europe.

AURELIA TURBINES MANUFACTURES SMALL, EXTREMELY EFFICIENT GAS TURBINES. ESTABLISHED IN 2013, THE COMPANY'S MAIN OFFICE AND MANUFACTURING FACILITIES ARE LOCATED IN LAPPEENRANTA, FINLAND, WITH THE OFFICE ALSO IN THE UNITED KINGDOM.

AURELIA®

Solutions for reducing food waste

BIOVAAKA OY PROVIDES SOLUTIONS FOR REDUCING FOOD WASTE IN RESTAURANTS AND INSTITUTIONAL KITCHENS.

The Biovaaka service system enables full food waste monitoring and produces data about generated food waste and its sources for our customers to support their management and development of business operations.

The system improves food waste transparency, engages staff and diners and incorporates food waste monitoring into our customers' daily operations. The system has helped our customers reduce food waste by dozens of percent.

Food waste is a global problem, which calls for solutions at every stage of the food production chain. The food waste generated by Finnish catering services alone amounts to over 60 million kilograms per year, which is around 16% of all food produced. In Europe, the amount is vastly larger.

To reach the objective set by the European Union and the UN to cut down the amount of food waste by fifty percent by 2030, we must work towards this goal with determination. The biowaste scale service of Biovaaka Oy is part of the solution.

– If we do not make food waste visible on a daily basis, it will not be possible to reduce food waste drastically. Our goal is to make the system an integral part of the everyday activities of restaurants and professional kitchens in Finland and also in Europe in the coming years, says marketing specialist **Laura Järvinen**.

Our customers include a wide range of municipal food service providers as well as private food service providers and restaurants. In addition to restaurants, the biowaste scale service of Biovaaka Oy has been introduced in daycare centres, educational institutions and industrial kitchens.

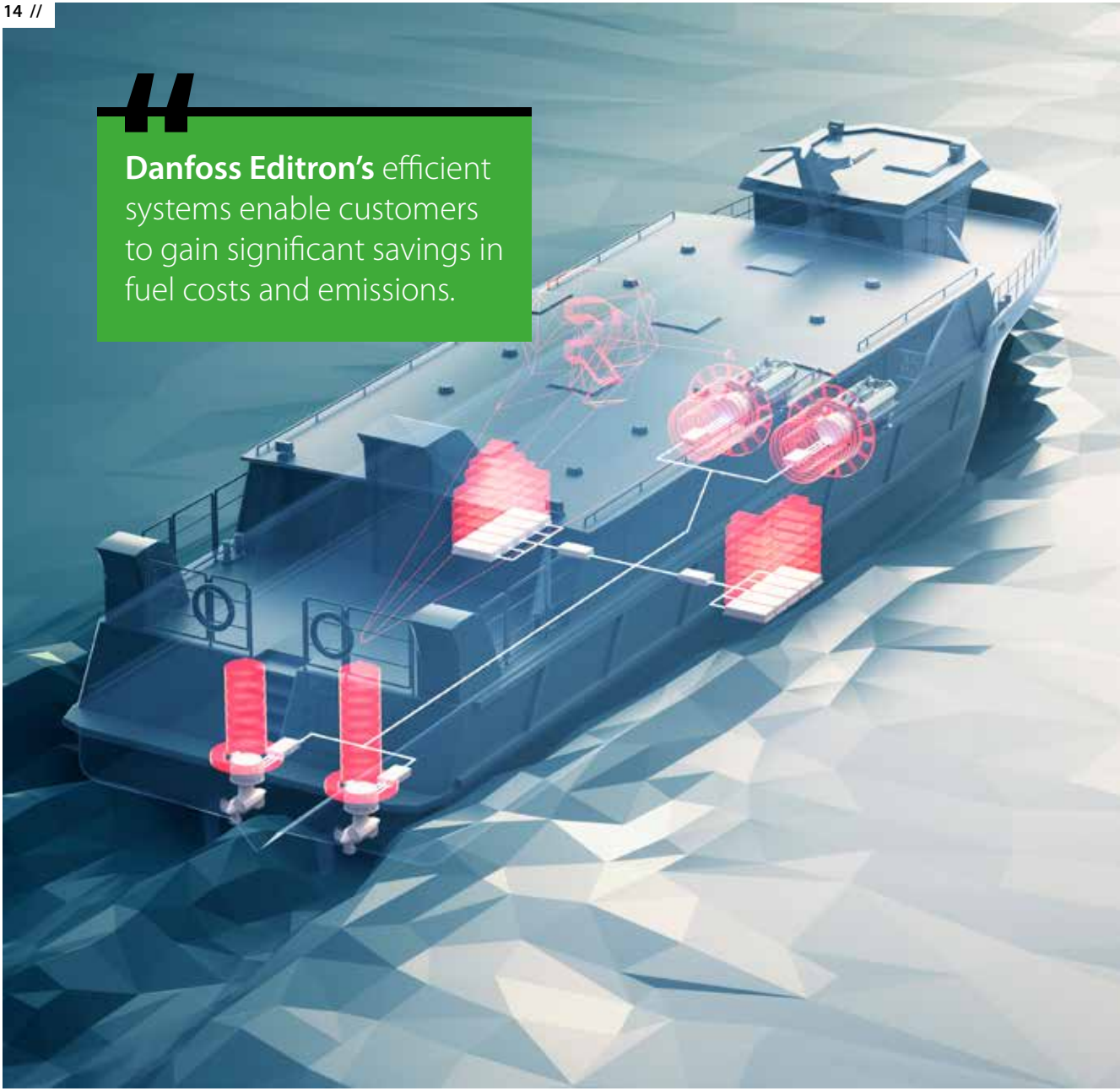
– When a restaurant reduces its food waste significantly, it is a sign of environmental responsibility and responsible development of business operations. The impact of reduced food waste is also directly reflected in the restaurant's financial performance. In addition to bringing direct savings, food waste reduction also cuts indirect expenses, such as personnel, delivery and waste management costs, says account manager **Valtteri Ahonen**.

BIOVAAKA IS A STUDENT-CREATED IDEA OF A BIO WASTE-WEIGHING SMART SCALE. BIOVAAKA OY IS A STARTUP COMPANY FOUNDED ON THE IDEA IN 2018.

BIOVAAKA

>> www.biovaaka.fi

We want to raise awareness about food losses and thus influence human behaviour.



Danfoss Editron's efficient systems enable customers to gain significant savings in fuel costs and emissions.

The electrification revolution is here

DANFOSS EDITRON OY SPECIALIZES IN HYBRID AND ELECTRIC POWERTRAIN SYSTEMS FOR OFF-HIGHWAY, ON-HIGHWAY AND MARINE MARKETS.

A business division of Danfoss, it develops and manufactures high-performance power systems for heavy-duty vehicles, machines and marine vessels, based on its unique synchronous reluctance assisted permanent magnet technology. Danfoss Editron Oy powertrains deliver market-leading efficiency and are suitable for hybrid and electric applications within the power range of 30 kW to 2,000 kW.

Danfoss EDITRON is the complete electric powertrain system developed by the company. It is controlled by powerful software that optimizes each individual component of the electric or hybrid powertrain, leading to far more intelligent management of power distribution in order to deliver maximum efficiencies for the end user.

WITH OPERATIONS IN FINLAND, DENMARK, CHINA, THE UNITED STATES OF AMERICA AND MOST RECENTLY EDINBURGH, UK, DANFOSS EDITRON HAS ASSEMBLED AN AWARD-WINNING TEAM TO WORK ON THE TECHNOLOGIES THAT WILL ENABLE THE WORLD OF TOMORROW TO DO MORE WITH LESS.

ENGINEERING TOMORROW

Danfoss

>> www.danfoss.com/editron

Electric transport facilitator

EASY EV LATURI PROMOTES A LOW-CARBON LIFESTYLE BY MAKING CHARGING SOLUTIONS AND SERVICES COMBATIBLE FOR ALL ELECTRIC VEHICLES AVAILABLE TO BOTH BUSINESSES AND CONSUMERS. THE COMPANY IS THE OFFICIAL DISTRIBUTOR OF CHINESE TEISON EV CHARGING PRODUCTS IN FINLAND.

– We want to offer the best electric vehicle charging products to the Finnish market and make Teison the number one choice for electric car users in Finland, says **Xing Shi**, the Managing Director of Easy EV Laturi.

The company's product range includes portable chargers, charging cables, wallboxes and inclusive electric vehicle (EV) charging stations. Regional partners across Finland helps the customers to find products and services that suits for every need.

The company is targeting to grow its sales network in other Nordic countries fast and sustainably to become the Nordic distribution center of Teison EV charging products. The aim is to build a comprehensive e-transport charging infrastructure in Scandinavia and thus speed up the transition of consumers and the public sector to e-transport.

– The popularity of electric vehicles is a very important step towards a carbon-neutral future on a global scale. By improving and expanding the charging infrastructure, we can directly influence people's mindset and consumption behavior.

The parent company Teison continuously invests in research and development of charging technology and puts an effort in high quality control, safety and customized service.

Industry-leading design, production and quality control ensure that our products are state-of-the-art, stable, easy to use and affordable, Xing Shi states.

TEISON SPECIALIZES IN DEVELOPING COMPREHENSIVE EV CHARGING SOLUTIONS. THE COMPANY IS HEADQUARTERED IN YANGZHOU, CHINA, AND HAS OPERATIONS IN MORE THAN 40 COUNTRIES IN EUROPE, NORTH AMERICA, ASIA AND OCEANIA. EASY EV LATURI IS TEISON'S OFFICIAL DISTRIBUTOR IN FINLAND.

EASY EV LATURI

>> www.teison.fi

An inclusive charging infrastructure for electronic traffic will take us one step closer to a carbon-neutral future.

The company's operations are based on renewable energy and intelligent electricity use.

Positive Troublemaker of Electric Sector

FROM RUOKOLAHTI, FINLAND, SPRINGS ELEKTROWAY OY, A VERSATILE EXPERT IN ELECTRICS WITH A FOCUS ON SOLAR ELECTRIC SOLUTIONS.

This dynamic, youthful and untraditional company is now experiencing a sharp rise. Elektroway aims to be an industry pioneer in energy saving and renewable energy solutions.

The company has its own imports for solar electric systems. In addition, the company offers various services related to electrical engineering and building automation solutions. We offer solar panels, heat pumps, electrical and lighting plans and, for example, home automation systems with installation.

The wide range of services is one of the company's competitive advantages. All services have been created in accordance with the idea of sustainable development, which is also reflected in the company's operations across the board.

– We use the latest available technology, which in turn saves energy. We look into the backgrounds of the products we use and always bring forth the facts to the customer. We prefer products that have been produced with renewable energy, says **Riikka Mehiläinen**, the COO of the company.

Elektroway is a supporter of a customer oriented approach as well as an economical and efficient service chain. The customer receives only the best, and a little extra on top.

– We spend a lot of time on research in order to offer our customers optimal and long-lasting solutions. Finishing is also carried out meticulously.

ELEKTROWAY OY IS A COMPANY WHICH SPECIALISES IN ELECTRICAL ENGINEERING, DESIGN AND INSTALLATION SERVICES, AS WELL AS SMART ENERGY SOLUTIONS AND HOUSE AUTOMATION. THE COMPANY CATERS TO PRIVATE CLIENTS, BUSINESSES, HOUSING COMPANIES, COMMUNITIES, CITIES AND MUNICIPALITIES. THE AREA OF OPERATION IS THE WHOLE OF SOUTH KARELIA AND SAVONLINNA.

Elektroway
MEET YOUR ENERGY

>> www.elektroway.fi

Emission-free steam and heat cost-effectively

ELSTOR POPULARISES DEMAND-RESPONSIVE ELECTRICITY PRODUCTION WITH ITS STORAGE SOLUTION. ELECTRICITY PRODUCED USING RENEWABLE ENERGY SOURCES IS STORED AS THERMAL ENERGY THAT CAN BE DISCHARGED AS HEAT OR STEAM FOR INDUSTRIAL PROCESSES.

The thermal storage replaces the need to burn oil, gas or liquid gas. It also significantly reduces the cost of producing steam and heat and combines peaks of energy demand with lowest electricity prices. Charging and discharging the thermal storage take place independently of each other, meaning that it can provide a control service as an additional service for grid companies in a cost-effective manner.

– A single thermal storage unit can reduce CO_2 emissions from steam or heat production by as much as 500 tonnes per year. The emission reduction potential depends on the fuel being replaced and the electricity used. In steam production, the potential for a climate leap is significant as much of steam is still produced using fossil fuels, says **Kari Suninen**, CEO of Elstor.

The thermal storage is a flexible solution for the needs of industrial SMEs. The device can be installed next to an existing plant and, if necessary, transported to another location. The storage can be controlled and managed remotely, and its maintenance needs are limited to a small number of pumps and actuators.

– The thermal storage also pays itself back in a competitive period of time when compared to the annual costs of natural gas and oil, for example. A high discharge power and efficiency guarantee that the solution is suitable for a wide range of heat and steam applications.

ELSTOR OY IS A COMPANY BASED ON LAPPEENRANTA THAT DEVELOPS AND MANUFACTURES ELECTRIC-CHARGED THERMAL STORAGE UNITS FOR INDUSTRIAL-SCALE HEAT AND STEAM PRODUCTION. THE SOLUTION ENABLES COST-EFFECTIVE PRODUCTION OF CARBON-NEUTRAL AND EMISSION-FREE THERMAL ENERGY.

ELSTOR

>> www.elstor.fi

Steam and heat without fossil fuels – a small act for businesses with a big impact on climate.

> Enerity™ products steer companies and consumers in a more energy-efficient direction.

Ecological electricity with Enerity™ products

OUR SOLUTIONS ENABLE ENERGY COMPANIES TO DIRECT THE ELECTRICITY SALES AND TRADE TOWARDS ECOLOGICAL ELECTRICITY PRODUCTS AND TO MANAGE THE CONSUMPTION, PRODUCTION VOLUMES AND SALES OF GREEN ELECTRICITY.

We are experts in energy sector software solutions. Our strong expertise and competence both in software and energy industry are highly valued by our customers, in addition to our proactive, innovative, and customer-oriented approach.

Electricity production is increasingly focusing on production methods that utilize CO_2-free and renewable forms of energy. Our solutions enable energy companies to offer their customers these more ecological electricity products in a cost-effective way and to manage the production volumes and sales of green electricity as a whole.

Our solutions allow products to be priced and managed in a new way. In addition, customers can be encouraged to use energy more evenly and at times when there is less energy consumption overall. Thus, allowing usage to be steered in a more environmentally friendly direction.

Enerity™ products can be integrated with other energy and water supply software. We work closely with our customers and other operators to develop new solutions for the needs of the industry and to meet future challenges.

WE ARE THE MARKET LEADER IN PORTFOLIO MANAGEMENT SOLUTIONS FOR ELECTRICITY SALES AND TRADING, STRATEGIC PLANNING SOLUTIONS FOR ELECTRICITY DISTRIBUTION AND MESSAGING SERVICES SOLUTIONS FOR ENERGY AND WATER SUPPLY CLIENTS. ENERITY™ PRODUCTS ARE USED TO PRICE 50% OF THE ELECTRICITY SOLD BY ELECTRICITY TRADERS AND 50% OF THE ELECTRICITY.

ENERITY SOLUTIONS

>> www.enerity.com

Pioneer in smart ventilation

MIKKELI-BASED ENTOS ENERGIATEKNIIKAN OPTIMISÄÄTÖ OY SUPPLIES DEMAND-CONTROLLED VENTILATION TO PROPERTIES WHILE ALSO INCREASING THE COMFORT OF LIVING AND REDUCING THE CARBON FOOTPRINT OF BUILDINGS.

The company sells, installs, maintains and services building automation, ventilation and heating systems. As its own product, Entos has brought a smart ventilation system to the market.

– The TopAir EC ventilation system we have developed is based on an extractor which, thanks to modern sensor technology, reacts to changes in the utilisation rate of the property by studying its air quality. Demand-controlled ventilation prevents unnecessary consumption of heating energy and saves money, Entos Oy CEO **Aki Pohjalainen** describes.

In practice, Entos has added intelligence, and thus cloud services, to a physical product, i.e. the extractor fan. The customer can track the status of ventilation in real time from the cloud service, and Entos can monitor and service the system remotely.

– Through the software, we receive information about the equipment in use and are constantly learning how we can improve the product. At the same time, we develop and optimise our production, says Chief Operating Officer **Sami Savolainen**.

For example, in the future, the system will be able to monitor outdoor air quality and limit ventilation when the air quality outside is poor and increase ventilation when the air quality is good.

Entos brings expertise that can be used to influence social themes to the Greenreality Network.

– We bring thought to demand-controlled ventilation and its growing importance. We also present the results of our product development and are constantly looking for new opportunities, Pohjalainen says.

ENTOS IS A COMPANY SPECIALISING IN ENERGY SAVING AND SMART VENTILATION SOLUTIONS FOR PROPERTIES. THE COMPANY SERVES REAL ESTATE COMPANIES AND INDUSTRY. WITH OFFICES IN MIKKELI, THE COMPANY'S OPERATING AREA COVERS THE WHOLE OF EASTERN FINLAND. THE TOPAIR VENTILATION SYSTEM IS WIDELY AVAILABLE THROUGHOUT FINLAND.

entos

>> www.entos.fi

> Comfort of living comes from properly designed ventilation.

By developing recycling services, an increasing share of household waste can be diverted to material recovery.

Etelä-Karjalan Jätehuolto – connecting residents to the circular economy

ETELÄ-KARJALAN JÄTEHUOLTO IS RESPONSIBLE FOR THE WASTE MANAGEMENT OF HOUSEHOLDS IN NINE MUNICIPALITIES.

More than half of the municipal waste is recycled as material and the rest is mainly utilised for energy production. Waste reception and treatment operations are centralised in the Kukkuroinmäki processing centre, the heart of the circular economy in South Karelia.

At the Kukkuroinmäki biogas plant, household biowaste is turned into clean and local transport fuel, BIG biogas. The biowaste and sludge from wastewater treatment plants are treated at the biogas plant under anaerobic conditions to form biomethane. After treatment and processing, this product, made from organic waste raw materials, is ideally suited as a fuel for both gas-powered passenger cars and heavy vehicles; for example, many buses and a significant proportion of the region's garbage trucks run on biogas. BIG biogas is available at five filling stations in South Karelia, with the refuelling network extending from Luumäki via Lappeenranta and Imatra all the way to Parikkala.

Packaging waste, plastic, carton and glass packages as well as small-sized metal items collected from eco take-back points and properties' collection containers are utilised in the manufacture of new packaging and products. Services are constantly being developed: South Karelia has been a pioneer in the collection of plastic packaging from properties and, for example, our Hyödyksi! multi-compartment container for recyclable waste is popular. Following efficient sorting, the remaining non-recyclable dry waste is utilised at the waste-to-energy plant for district heating and electricity production.

ETELÄ-KARJALAN JÄTEHUOLTO IS A CIRCULAR ECONOMY COMPANY OWNED BY THE CITIES OF LAPPEENRANTA AND IMATRA AND THE MUNICIPALITIES OF LEMI, LUUMÄKI, PARIKKALA, RAUTJÄRVI, RUOKOLAHTI, SAVITAIPALE AND TAIPALSAARI. APPROXIMATELY 127,000 RESIDENTS LIVE IN THE COMPANY'S OPERATING AREA.

Hyödyksi!
Etelä-Karjalan Jätehuolto Oy

>> www.ekjh.fi

Developer of regional vitality

OP ETELÄ-KARJALA IS A LOCAL BANK THAT PROMOTES THE DEVELOPMENT OF ECONOMIC VITALITY AND EMPLOYMENT THROUGHOUT THE REGION WITH BUSINESS LOANS. ALL OF THE BANK'S OPERATIONS ARE INCREASINGLY TIED TO ENVIRONMENTAL AND SOCIAL RESPONSIBILITY AND GOOD GOVERNANCE.

OP Etelä-Karjala is part of the national OP Financial Group, Finland's largest financial institution. As part of the Group, OP Etelä-Karjala has access to all necessary services, from payment traffic to asset management and insurance.

– We also provide services in international exports, financing and foreign exchange hedging, says Bank Manager **Leo-Petteri Nevalainen**.

OP Etelä-Karjala employs around 20 business support service professionals for businesses in the region. Nevalainen says that the company is heavily invested in the region.

– We have the resources to provide designated account managers for every major client. They channel all our clients' service needs to teams staffed by experts in various fields.

All services by OP can be customised to the client's needs. In this area, designated account managers play an important role.

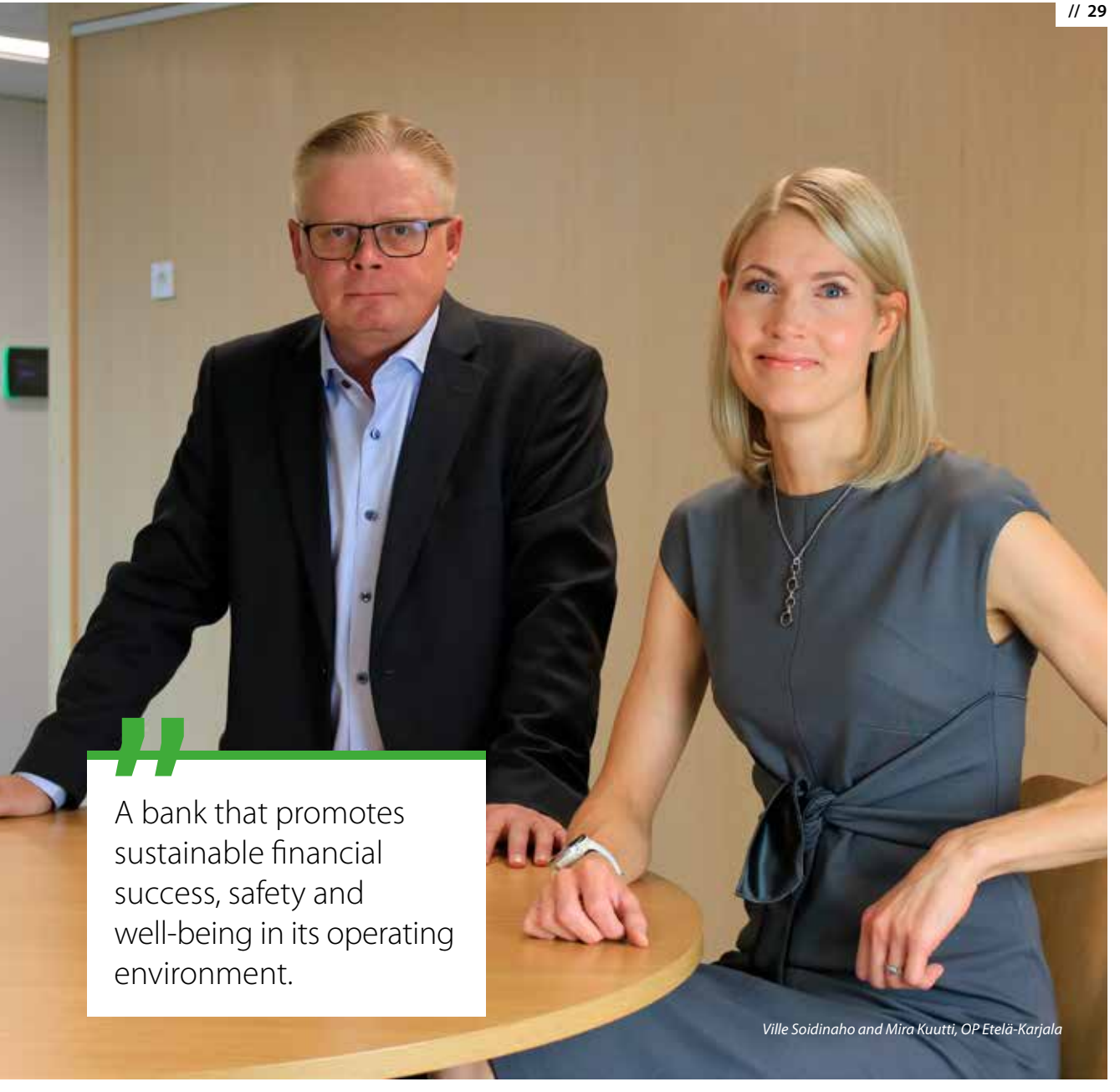
– We always follow our clients' wishes. Knowing the client's business is important for us to provide the best solutions for everyone, thereby supporting the company's own goals. We are also easy to reach, says **Mira Kuutti**, Director, Corporate Customers.

As a member of the Greenreality Network, OP Etelä-Karjala aims to increase awareness among businesses and customers in the region about the environmental and social responsibility of banks and sustainable business. Banks increasingly have obligations that arise from the needs of sustainable development, such as when analysing credit portfolios or a client's financial situation.

– We have the opportunity to support businesses that are involved in the circular economy, renewable energy and emissions reduction. We also offer a number of funds that invest businesses' money responsibly, says Customer Relationship Manager **Ville Soidinaho**.

OP ETELÄ-KARJALA, OFFICIALLY ETELÄ-KARJALAN OSUUSPANKKI, IS THE REGION'S LARGEST BANK. WE HAVE BRANCHES IN LAPPEENRANTA, IMATRA, PARIKKALA AND SIMPELE. OUR BANK HAS AROUND 80,000 CUSTOMERS AND MORE THAN 57,000 OWNER-CUSTOMERS. WE ARE PART OF THE NATIONAL OP FINANCIAL GROUP.

>> www.op.fi/etela-karjala



A bank that promotes sustainable financial success, safety and well-being in its operating environment.

Ville Soidinaho and Mira Kuutti, OP Etelä-Karjala

We are one of Finland's largest consulting companies. We design more functional living environments, good governance and effective skills development and education in Finland as well as globally.

Makers of Good Life

FCG FINNISH CONSULTING GROUP OY PERCEIVES THE FUTURE AS ALREADY BEING ON THE DESIGN TABLE AND COMPETES WITH SUSTAINABLE QUALITY.

The FCG service palette consists of infra, environmental and urban planning, training in various fields, development of public services and management consulting. Their operations span from Finland to about 30 other countries.

– Our strengths include local knowledge, extensive expertise and comprehensive service: we influence many sectors of society. Hence, we are able to offer complete solutions instead of individual deeds, says **Pauli Santala**, Head of Urbanisation and Regional Vitality Competence Group.

The key themes in the company's operations are sustainable communities, energy, environment and clean water. FCG also has a wide range of services related to circular economy. Sustainability principles are taken into account in projects from the start, and the customer is offered long-lasting solutions.

– We do not offer disposable services for money. Instead, we strive to provide quality and wide-ranging expertise into matters of design, in order to make society work in an environmentally friendly manner, Santala describes.

– In Finland, customers of FCG include companies, as well as public sector actors such as the state, cities and municipalities. The operations are led from Lappeenranta.

Lappeenranta is an interesting place for us, particularly because of the university. Collaboration between companies, the university and the city is going particularly well. In addition, we have strong economic development, an extensive knowledge-based hub of environmental matters and big industries here. Here we have an opportunity to grow.

FCG brings the expertise and networks of a national operator to the Greenreality Network.

– We bring with us all-around environmental thinking and all the services of the organisation, that is, we also bring in the expertise that is not found in this area, Santala says.

AT FCG, WE PROMOTE UNCOMPLICATED, ECOLOGICALLY CONSCIOUS EVERYDAY LIVING AND EQUALITY IN FINLAND AND WORLDWIDE. WE ARE A PARTNER FOR MUNICIPALITIES, COMPANIES AND COMMUNITIES IN MULTIDISCIPLINARY COMMUNITY PLANNING, SKILLS DEVELOPMENT, THE PROMOTION OF GOOD GOVERNANCE AND SOFTWARE DEVELOPMENT.

FCG

>> www.fcg.fi/en

Natural fibres as a substitute to plastic

FIBER-X FINLAND TAKES ON CLIMATE CHANGE BY DEVELOPING AND PRODUCING GLOBALLY SCALABLE PLASTIC SUBSTITUTES AND BIO-PRODUCTION CONCEPTS USING AGRICULTURAL FIBRES.

Agricultural fibres refer to fibres sourced from agriculture, such as straw, corn stalks and hemp. For example, fibre made from straw may in the future be the main raw material in products that today are made of plastic.

– We are helping the planet while generating significant zero-emission business, says CEO **Mikko Ruuska**.

Fiber-X Finland focuses on serving the needs of the bio-industry by providing a framework for product testing. The company offers training for businesses and research opportunities for universities at its pilot and training centre in Lemi.

– We help our customers produce bolts of material for their own product development projects at a reasonable cost. Our customers are working on technologies such as bio-based packaging, barriers capable of stopping molecules and new production processes.

The company has a network of more than 30 experts, including specialists in demanding research and development projects, Ruuska continues.

In the near future, Fiber-X will expand its operations to Lappeenranta, where a bio-production plant based on the use of willow wood will be located to manufacture antiviral chemicals, biocomposites and growing mediums. In addition, the company is planning a bio-production plant concept in North Ostrobothnia, which would enable the zero-emission production of biocarbon and viscose fibre using hemp.

From the Greenreality Network, Fiber-X is looking forward to opportunities for collaboration with local businesses and ambitious joint projects that will truly put Lappeenranta on the map in green action.

FOUNDED IN 2019, FIBER-X FINLAND DEVELOPS ALTERNATIVES TO PULP SOURCED FROM FORESTS IN ITS OWN RESEARCH FACILITY AND IN COOPERATION WITH PARTNERS. THE COMPANY'S PILOT AND TRAINING CENTRE IS LOCATED IN LEMI. FIBER-X FINLAND HAS A SISTER COMPANY IN SWEDEN.

FIBERX
FINLAND

>> www.fiber-x.fi

Alternatives to fossil fuel and cellulose-based raw materials from agricultural fibres.

Alternative fuels and by-products from other industries are utilised in the manufacture of cement.

Alternative fuels reduce environmental impact

FINNSEMENTTI REDUCES CARBON DIOXIDE EMISSIONS BY USING ALTERNATIVE FUELS. THE WASTE HEAT FROM THE CEMENT KILNS IS SOLDTO THE CITY'S DISTRICT HEATING NETWORK.

The CO_2 emissions at Finnsementti's Lappeenranta plant have steadily declined in the 2010s. The development, in line with the company's strategy, is affected by the technology of the new cement kiln commissioned in 2007 and the use of alternative fuels.

– More than half of the fuel we use is alternative. Mostly we use REF and some recycled oil, explains **Jussi Puustinen**, director of the plant.

The waste heat generated in the manufacture of cement is sold to Lappeenrannan Energia, which feeds it to the district heating network.

Finnsementti develops the energy efficiency of its operations and production on a continuous basis. Also waste and by-products from other industries is utilised in the manufacture of cement. Mill scale, needed in the process, is obtained from the Imatra steel factory while fly ash comes from power plants. The transportation emissions of the primary raw material remain low, as the limestone is obtained from the Nordkalk quarry next to the plant.

FINNSEMENTTI'S LAPPEENRANTA PLANT MANUFACTURES APPROXIMATELY 550,000 TONNES OF CEMENT AND 500,000 TONNES OF CLINKER ANNUALLY. THE PRODUCTION IS ENTIRELY CONSUMED BY THE FINNISH CONSTRUCTION INDUSTRY. THE PLANT EMPLOYS 65 PEOPLE. CEMENT HAS BEEN MADE IN LAPPEENRANTA SINCE 1938.

FINNSEMENTTI
A CRH COMPANY

Using optimisation to deliver maximum energy efficiency

GRANLUND HAS ACHIEVED UNBEATABLE ENERGY EFFICIENCY FOR BUILDINGS, REAL ESTATE AND EVEN ENTIRE NEIGHBOURHOODS. IT HAS DONE THIS THROUGH MORE COST-EFFICIENT OPTIMISATION, BASED ON A WIDE RANGE OF OPTIONS.

Every major construction project is preceded by an energy and environmental analysis of the alternatives. In its energy efficiency modelling, Granlund, a leading expert in energy efficiency, uses a virtual modelling tool to minimise investment and life-cycle costs and energy consumption.

The optimisation tool takes just a few hours to prepare 100–1,000 options for the location in question. It calculates and compares the different variables affecting construction projects. Optimisation can be used to determine issues such as how alternative building solutions impact on energy consumption and indoor air.

Granlund motivates in addition to calculating. The operation and maintenance of premises have a key impact on energy efficiency. For example, by motivating people and using devices only when necessary, the electrical consumption of offices can be cut in half.

– There is room for improvement in the user friendliness of real estate. For instance, you can reduce your carbon footprint by around 1/3 just by changing people's behaviour, says **Pekka Metsi**, CEO of Granlund.

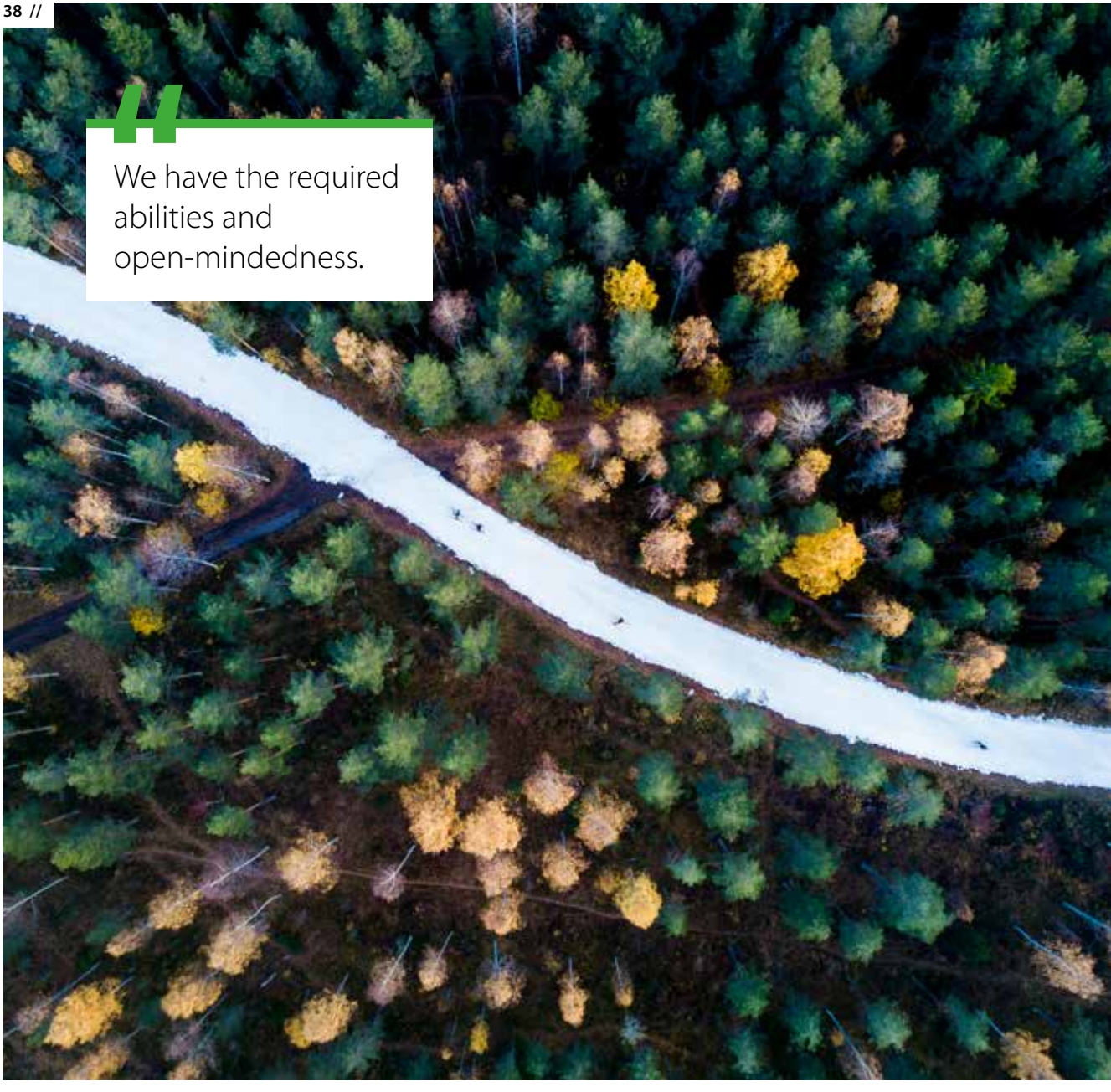
FOUNDED IN 1960, GRANLUND IS A GROUP WITH EXPERTISE IN BUILDING SERVICES ENGINEERING, REAL ESTATE, ENERGY AND ENVIRONMENTAL CONSULTING AS WELL AS SOFTWARE. ITS CORE COMPETENCIES LIE IN ENERGY EFFICIENCY. THE COMPANY OPERATES IN 16 LOCATIONS AND EMPLOYS AROUND 600 EXPERTS.

GRANLUND SAIMAA – WHOSE PARTNERS INCLUDE THE CITIES OF LAPPEENRANTA AND IMATRA, AS WELL AS THE LOCAL UNIVERSITY, CENTRAL HOSPITAL, VARIOUS COMMERCIAL COMPANIES AND LOCAL INDUSTRY – OPERATES FROM LAPPEENRANTA.

Granlund
Less energy gives more

>> www.granlund.fi, www.granlundconsulting.fi

> You can reduce your carbon footprint by around 1/3 by changing people's behaviour.



> We have the required abilities and open-mindedness.

Sustainably Developing Imatra

THE CITY OF IMATRA STRENGTHENS THE VITALITY OF THE REGION, PROMOTES THE WELLBEING OF ITS CITIZENS AND RENEWS ITS POLICIES IN A FINANCIALLY, SOCIALLY AND ENVIRONMENTALLY SUSTAINABLE WAY.

In the everyday-life of citizens, this can be seen, for example, in the centralisation of services and the rethinking of the city plan. Well-designed planning solutions, functional and solid community structure as well as transportation arrangements support sustainability in all areas of everyday-life. The new city plan extends all the way to 2040.

– The main idea is that Imatra expands through concentration. At the same time, we are also going through the policy guidelines of the action plan for sustainable urban development from this point of view, says City Engineer **Päivi Pekkanen.**

The city of Imatra cooperates with its subsidiaries Mitra Oy and Imatran Lämpö Oy in order to carry out concrete climate actions.

Mitra manages most of the city's properties: it reduces existing repair debt, improves the energy efficiency of existing buildings, and builds new, energy-efficient and cost-effective real estate.

Imatran Lämpö Oy has significantly reduced the city's greenhouse gas emissions after shifting to domestic biofuels in the production of district heating. Approximately 50% of the city's households and more than 90% of public and commercial properties are customers of Imatran Lämpö Oy.

Pekkanen feels that collaboration with the subsidiaries is straightforward and matters can be brought up quickly.

– We are able to solve different challenges together smoothly. We have the required abilities and open-mindedness. We mirror the mental vitality, desires and aspirations as well as the worries and sorrows of the community and we put things in motion.

In addition to the city's own activities, Imatra is also known for its large industrial companies, which spread information of circular economy and of renewable energy. Stora Enso's mills in Imatra develop wooden fibre-based packaging materials. The steel production of Ovako is based on a purely recycled steel grain, and the Vuoksi River generates three times the energy that the city of Imatra needs.

IMATRA IS A CITY OF 27,000 INHABITANTS AND ITS MOST PIVOTAL OPERATIONS ARE TIED TO INDUSTRY AND TOURISM. THE CITY IS DOMINATED BY THE VIEW OF VUOKSI RIVER, LAKE SAIMAA AND THE PROXIMITY OF THE RUSSIAN BORDER. IMATRA IS A NATIONAL MIRACLE – A CITY LARGER THAN ITS SIZE.

IMATRA

>> www.imatra.fi

Fully fossil-free district heating

THE AFFORDABILITY AND EFFORTLESSNESS OF DISTRICT HEATING IS ATTRACTING A STEADY FLOW OF NEW CUSTOMERS TO IMATRAN LÄMPÖ.

Imatran Lämpö Oy generates 100 % of district heat using biofuels. More than half of the biofuel is forest industry by-products, such as bark and sawdust, and the rest is wood chips from nearby areas. Biogas is used to supplement the process only during the coldest periods of sub-zero temperatures.

The company has been utilising biofuels since 2015. In 2020, the company switched from natural gas to biogas in the production of district heat. The company is constantly investing in facilities and the district heating network to improve and maintain the reliability of district heat. New customers have also been connected to the network.

– The increase in the number of customers allows for the further expansion of the district heating network and the addition of new customers within the network, says production manager **Turo Valkama**.

The company's latest equipment investment is a flue gas scrubber for the Rajapatsas plant. Thanks to the flue gas scrubber, the plant has improved its efficiency and decreased its fuel consumption by 30 truckloads.

– The new investments and good management of finances mean that the price of district heating can also be kept low in the future, Valkama says.

IMATRAN LÄMPÖ OY IS A LIMITED COMPANY, WHOS SHARES ARE FULLY OWNED BY THE CITY OF IMATRA. THE COMPANY PRODUCES AND SUPPLIES DISTRICT HEAT AS WELL AS DISTRIBUTES NATURAL GAS AND BIOGAS WITHIN THE IMATRA CITY REGION. THE DISTRICT HEAT IS GENERATED USING WOOD CHIPS, FOREST INDUSTRY BY-PRODUCTS AND NATURAL GAS AS PEAK AND RESERVE FUEL.

Imatran Lämpö

>> www.imatranlampo.fi

About 60% of the households in Imatra as well as the largest commercial and office buildings are heated with district heating.

KEHY acts as a link between the Greenreality network and companies in its operating area.

Business development services and networks for innovative companies

THE IMATRA REGION DEVELOPMENT COMPANY (KEHY) ACTS AS A LINK BETWEEN THE GREENREALITY NETWORK AND COMPANIES IN ITS OPERATING AREA.

KEHY coordinates the development of new industrial business operations and boosts the vitality of the Imatra region. KEHY is one of the partners implementing the Lappeenranta-Imatra ecosystem agreement.

We offer business development services and networks for innovative companies in the industrial sector. We spar with companies and public-sector actors to enhance their ability to make smarter procurements.

We also focus on harnessing digitisation, automation and robotisation in products and services, thereby fostering resource-wise industry and, for example, the introduction of smart transport solutions.

THE IMATRA REGION DEVELOPMENT COMPANY (KEHY) IS A DEVELOPMENT FIRM WHOSE MISSION IS TO PROMOTE BUSINESS IN THE IMATRA REGION. KEHY IS RESPONSIBLE FOR CORPORATE SERVICES IN THE MUNICIPALITIES OF IMATRA, RUOKOLAHTI AND RAUTJÄRVI, AND ALSO FOR FUNDING AND IMPLEMENTING DEVELOPMENT POLICY PROJECTS.

KEHY
Imatran Seudun Kehitysyhtiö Oy

>> www.kehy.fi

Energy Company delivers green energy in Finland and in Estonia

ENERGY FRIENDLINESS, EFFICIENCY AND ECONOMICAL SOUNDNESS ARE THE GUIDING PRINCIPLES OF THE IMATRAN SEUDUN SÄHKÖ ELECTRICITY COMPANY.

The basic task of Imatran Seudun Sähkö Oy is to ensure the availability of electricity to its customers. ISS Oy has acquired shares in electricity production companies with the aim of strengthening its own electricity production and competitiveness in the electricity market in the long term.

Membership of the Greenreality Networkprovides contacts with environmental and energy expertise in the region, where the Lappeenranta University of Technology is among the best in Finland.

– Through expertise and innovations, we can promote sustainable development, says Managing Director **Ari Saukkonen**.

ISS Oy sells electricity in both Finland and Estonia. In Estonia, business operations are managed by the ISS Oy subsidiary Imatra Elekter AS. Both companies are ISO 14 001 certified, steering the companies' operations in a more environmentally-sound direction. ISS Oy guides its customers in the use of sustainable development practices by providing them with tools to improve, for example, their energy-efficiency. One such tool is the Wattis online service, which the customers can use to monitor their electricity consumption.

Our green electricity comes from hydroelectric and wind power. Customers can choose low-emission and ecological energy produced entirely from renewable energy sources. The growth in the demand for green electricity is directly proportional to the increase in consumers' environmental awareness, says Mr Saukkonen.

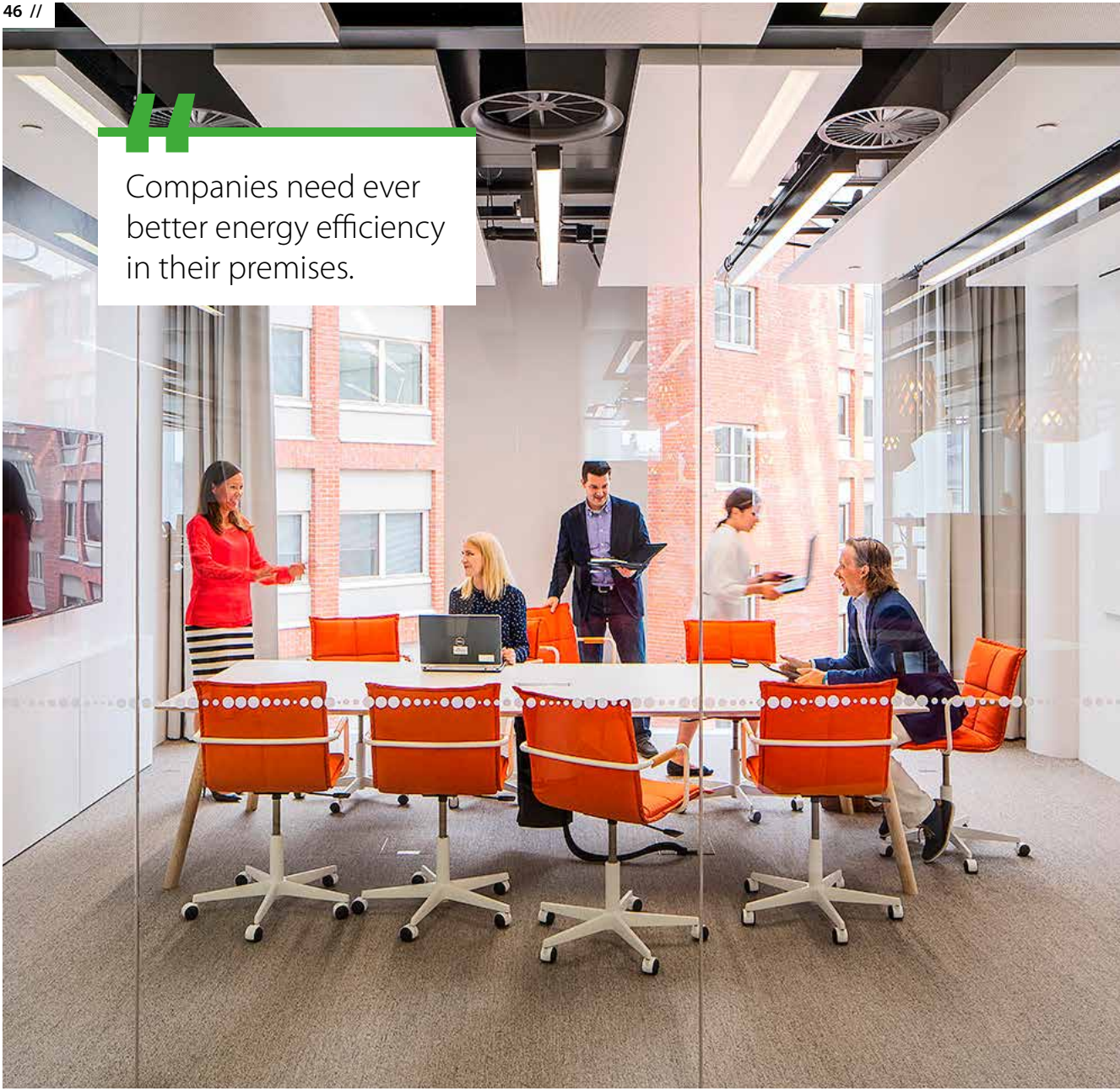
FOUNDED IN 1928, IMATRAN SEUDUN SÄHKÖ IS AN ENERGY GROUP OWNED BY PRIVATE INDIVIDUALS, COMPANIES AND COMMUNITIES. ITS CORE BUSINESS IS THE PROCUREMENT, TRANSFER AND SALE OF ELECTRICITY. ISS OY'S DISTRIBUTION AREA COMPRISES IMATRA AND RUOKOLAHTI, ONE HALF OF THE MUNICIPALITY OF RAUTJÄRVI AND PART OF TAIPALSAARI.

IMATRAN Seudun Sähkö

>> www.issoy.fi

> Caring for the environment is part of our responsibility.

Jetro Mattilainen


Companies need ever
better energy efficiency
in their premises.

Energy-efficient heating and cooling operate on a needs basis

THE HEATING OF RESIDENTIAL AND COMMERCIAL PREMISES CAN BE MANAGED IN AN ENERGY-EFFICIENT AND ENVIRONMENTALLY FRIENDLY MANNER.

A radiant ceiling panel developed by Itula Oy contains so much intelligence that it can operate as either a heater or cooler, depending on the situation. When heating, a radiator distributes heat from water led to the panel into the room. And when cooling, cold water flows through the panel. The ideal temperature of the premises remains constant, regardless of any changes in circumstances, so no one needs to freeze or overheat.

Jukka Itkonen, the Chairman of Itula's Board of Directors, points out that energy costs make up an ever greater share of household expenses.

– However, they can be cut by reducing consumption. Itula's mode of operation is geared towards saving energy, he says. In addition to energy savings, the ItuGraf panel system significantly improves the room conditions, thus benefiting human well-being and productivity. ItuGraf panels create a pleasant temperature into the room without draft, dust or noise.

Itula's services include comprehensive solutions that include the modelling, design and manufacture of heating and cooling systems, delivery to the work site and, when necessary, system installation and testing. It addition to its own products, the company uses technical building products from international manufacturers, where the common denominator is energy efficiency.

ITULA OY IS A FAMILY BUSINESS FROM LAPPEENRANTA, ESTABLISHED IN 1990, WHICH SPECIALISES IN ENVIRONMENTALLY FRIENDLY HEATING AND COOLING SYSTEMS THAT ENHANCE ENERGY EFFICIENCY.

itula ituGraf®

>> www.itula.fi

A home for the companies and workplaces of a sustainable future

THE PRINCIPLES OF SUSTAINABLE DEVELOPMENT GUIDE THE OPERATIONS OF IVH KAMPUS, FROM TECHNICAL BUILDING SERVICES TO SANITATION.

IVH Kampus runs its real estate business according to the principles of sustainable development. The energy-efficiency, environmental impact and comfort of the buildings is fostered through up-to-date property technology and continuous monitoring.

Property experts play a key role in monitoring. They know the buildings and the people using them, and they are on site, ensuring the best possible working conditions for the companies. The CO_2 content, humidity and temperature of indoor air are monitored carefully. Waste produced in offices is sorted on site and recycled.

Measures to improve the condition and convenience of the buildings are taken systematically.

– Investing in property technology is always profitable. Optimising the use of electricity, heat and water creates savings in operating costs, thus generating savings for our customer companies, says **Päivi Kangas**, Director of IVH Kampus Lappeenranta.

Tenants of IVH Kampus include more than a thousand people working for almost one hundred companies. An increasing number of jobs at IVH Kampus are based on the expertise of LUT University and LAB University of Applied Sciences. Students often work in already established as well as growing and successful startup and spin-off companies even before their graduation.

INVESTORS HOUSE IS AN ACTIVE REAL ESTATE INVESTMENT COMPANY OPERATING IN THE ENTIRE VALUE CHAIN OF THE REAL ESTATE BUSINESS, FROM LAND ACQUISITION AND PROJECT DEVELOPMENT THROUGH OWNERSHIP AND RENTAL TO THE MANAGEMENT OF REAL ESTATE ASSETS AND REAL ESTATE FUNDS. THE BUSINESS MODEL OFFERS A NUMBER OF OPPORTUNITIES FOR VALUE CREATION AND STABLE RETURNS. INCREASING SHAREHOLDER VALUE IS A KEY OBJECTIVE OF THE COMPANY. INVESTORS HOUSE OWNS THE IVH KAMPUS REAL ESTATE AND SERVICE COMPLEX COMPRISING 24,000 SQUARE METRES IN SKINNARILA, LAPPEENRANTA.

IVH KAMPUS

>> www.ivhkampus.fi

Lappeenrannan kaupunki

> The best working conditions are created when there is a balance between people and automation.

Where sustainability meets education!

Joutseno College excels in sustainable development and ecosocial education

JOUTSENO COLLEGE'S ECOSOCIAL PHILOSOPHY OF EDUCATION IS A HOLISTIC APPROACH THAT COVERS ALL ACTIVITIES.

Joutseno College wants to be a pioneer of sustainability and ecosocial education by 2035. This means taking sustainable development and futures into account in every aspect of the school's operation – from the meals served in the student canteen and the energy systems used to power and heat the halls of residence to the course curriculum.

– And we also practise what we preach, says Deputy Head **Heidi Lindberg**.

– For us, being a good corporate citizen is about always looking for ways to improve, in recognition of which we were awarded CAF certification for excellent development work in the spring of 2020. Joutseno College is the first educational establishment to be recognised in this prestigious manner.

The school is also currently working towards having a new sustainable development certification by the OKKA Foundation in the spring of 2022.

The principles of ecosocial education and sustainable development drive the entire curriculum but especially the school's multidisciplinary sustainability studies programme. This course is all about an ecosocial approach to education and transformative learning.

– We believe that everything can – and should – start with good corporate governance and an ecosocial approach to education, says Head of Sustainable Development **Joanna Hämäläinen**.

– In addition to our ecological ethos, the social aspects of education are also important. We respect each student for who they are and welcome every individual as a valued member of our community. This creates a safe living and learning environment in which students thrive.

JOUTSENO COLLEGE
– WAS FOUNDED IN 1950
– IS RELIGIOUSLY AND POLITICALLY INDEPENDENT
– OFFERS LANGUAGE AND VISUAL ARTS EDUCATION, OPEN UNIVERSITY UNDERGRADUATE COURSES AND NOW ALSO SUSTAINABILITY STUDIES

JOUTSENON OPISTO
Where sustainability meets education!

>> www.joutsenonopisto.fi

Energy efficiency of old suburban housing blocks is easy to improve

THE OPTISUN HEATING SYSTEM RECOVERS EXHAUST AIR WASTE HEAT AND UTILISES FREE SOLAR HEAT. DISTRICT HEATING IS ONLY REQUIRED IN THE WINTER.

The main elements of the OptiSun heating system are a rotating solar heat collector, hot water accumulator tank the same height as the block of flats, and an exhaust air heat pump. They are located in a pilaster structure erected at the end of the building, making it unnecessary to tamper with roof structures.

The system is designed for blocks of flats with exhaust ventilation systems.

– The biggest energy-saving potential lies in old housing blocks. Their roofs are perfect for instalment of solar heat collectors, says the developer of the OptiSun system, **Ville Terävä**.

– The rotating collector has revolutionised the dimensioning of solar heat systems in northern conditions. The capacity of the tubular heat accumulator tank is now designed to meet consumption. This enables us to optimise the operations of the collector and the heat pump, says Mr. Terävä.

In order to minimise heat loss, it is possible to place the heat accumulator tank inside the central shaft of the stairwell, for example. The horizontally rotating and sun-following collector adjusts the temperature of the hot water accumulator tank by stopping the collector in the shade if necessary.

– It is possible to finance the entire investment with the savings it will generate, says Mr. Terävä.

The OptiSun system operates on free solar and waste heat and generates ecological and carbon-dioxide-free heating energy. And it will not increase electricity consumption in the building.

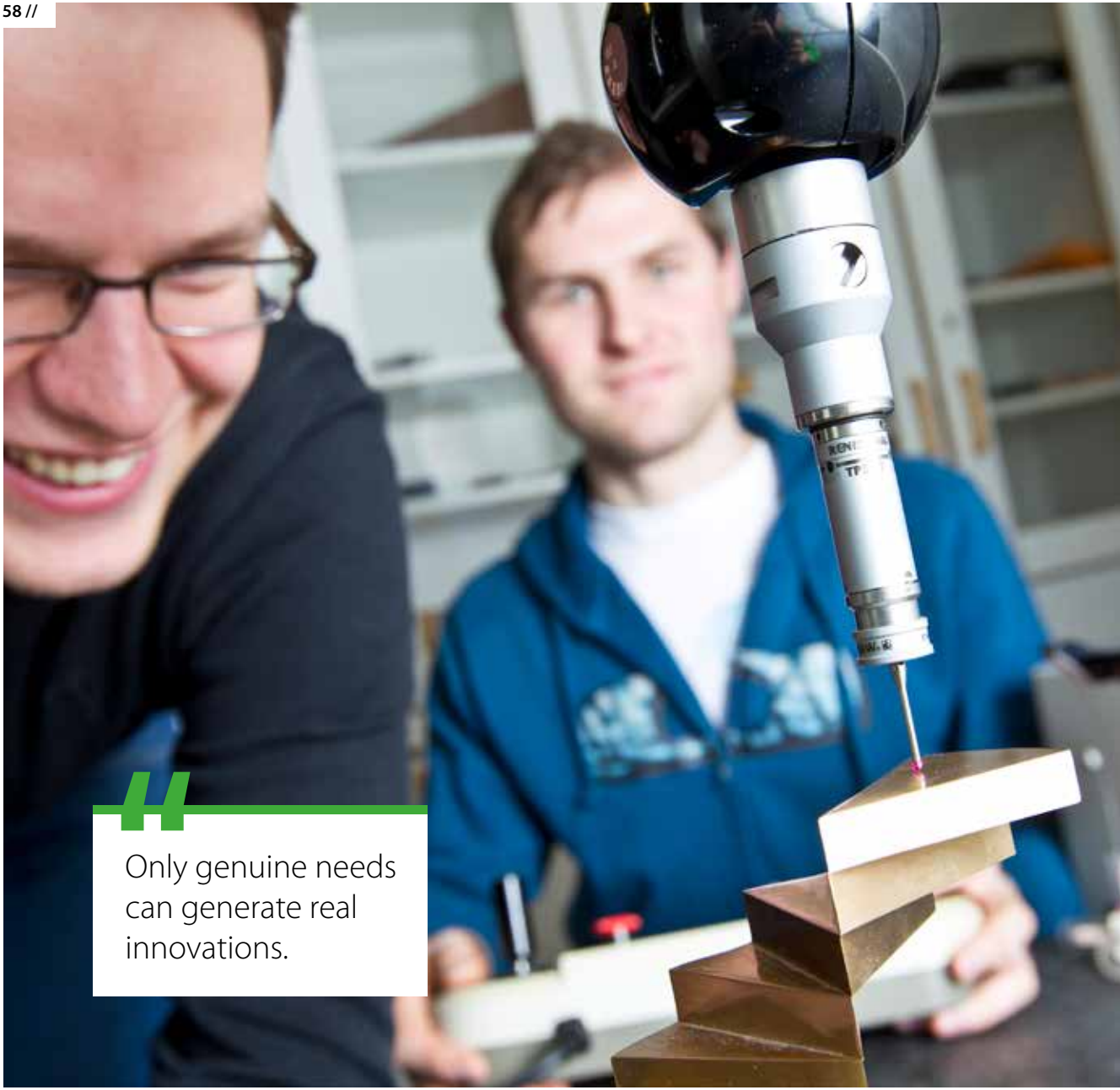
Example: The heat energy consumption of a housing block built in 1970 is 431 MWh/a, of which the OptiSun system can replace 66%. The investment cost is EUR 130,000 with a payback time of 5.4 years.

KYMI-SOLAR LTD. IS A START-UP BUSINESS AIMING TO THE INTERNATIONAL MARKET. THE COMPANY WAS FOUNDED IN THE SPRING OF 2016 TO COMMERCIALISE THE PATENTED SOLAR AND EXHAUST AIR HEATING SYSTEM, OPTISUN.

kymisolar.com

>> www.kymisolar.com

> The system will generate more than half of the building's heat demand and its payback time is less than eight years.



> Only genuine needs can generate real innovations.

Sustainable development innovations for everyday life and business

LAB UNIVERSITY OF APPLIED SCIENCES CREATES NEW SUSTAINABLE DEVELOPMENT SOLUTIONS IN COOPERATION WITH COMPANIES AND RESIDENTS.

LAB University of Applied Sciences is a new innovation-oriented higher education institution for working life that promotes the transition to a carbon-neutral society based on the circular economy and generates new business. The starting point for operations is the needs of the customers and the users.

– We believe that only genuine needs can generate real innovations, Vice Rector **Henri Karppinen** says.

– People always play the lead role in the development of innovations, he adds. Smart and people-oriented solutions that increase well-being and promote the region's low-carbon economic structure are developed through collaboration between different fields of education.

Joint projects between LAB University of Applied Sciences and companies have yielded, among other things, new methods for the management of energy production and consumption as well as for improving material efficiency. The operations utilise lifecycle and information modelling.

In addition, new technologies and digital solutions have been developed to promote sustainable material cycles.

Special skills in design and art help businesses, communities and citizens create ecologically, economically, socially and culturally sustainable products, services and living environments. Projects involve testing concrete new methods with residents, such as novel sharing economy services.

The activities emphasise the commercialisation of innovations. The projects encourage companies to combine their expertise into service products and promote their access to wider markets. The aim is to create new jobs and increase the attractiveness of the region.

The simulation premises for social and health care services as well as the technology laboratories of LAB University of Applied Sciences are among the best in Finland. In practice, cooperation with the UAS can be started, for example, by testing new product, service or business ideas in different industries.

THE LAB OFFERS EDUCATION IN FIVE FIELDS: HEALTH CARE AND SOCIAL SERVICES, TECHNOLOGY, BUSINESS, HOSPITALITY, AND DESIGN, FINE ARTS AND VISUAL COMMUNICATION. OUR STRENGTHS INCLUDE THE CIRCULAR ECONOMY, DESIGN, INNOVATIONS AND HEALTH. THE LAB HAS OVER 8 500 STUDENTS AND IT OPERATES IN LAHTI, LAPPEENRANTA, AND ALSO PROVIDES EDUCATION ONLINE.

LAB University of Applied Sciences

>> www.lab.fi

Solutions for a cleaner future

LAPPEENRANTA-BASED LAITEX OY SUPPLIES MATERIAL HANDLING SOLUTIONS FOR INDUSTRIAL PURPOSES TO SERVE AS TOOLS IN THE FIGHT AGAINST CLIMATE CHANGE AND TO PROMOTE THE CIRCULAR ECONOMY. GLOBAL TECHNOLOGY COMPANY HELPS ITS CLIENTS WORK SMARTER, SAFER AND WITH LESS IMPACT ON THE ENVIRONMENT.

Laitex mainly serves the energy, pulp and paper, mining, chemical and environmental technology sectors. Demanding turn-key deliveries for the energy and power plant industries are Laitex's core competence.

Laitex's products include various conveyors, dischargers, feeders, screens and crushers from individual equipment deliveries to larger, turn-key solutions. Turn-key solutions include repair, maintenance and lifecycle services for the equipment. The projects can also include electrical work, automation and buildings to house the equipment.

– In practice, our solutions help automate the transport and handling of materials in industries where uninterrupted handling is a critical part of operations. says Project Manager **Amira Achek** from Laitex.

Ensuring the success of customers is one of the cornerstones of Laitex's business. The company's slogan, "Flow must go on", is a mindset that cuts across all operations and a promise to customers of first-rate quality and service.

– We employ many engineers who design our products according to customers' needs. We encourage our customers to challenge us to discover new types of solutions.

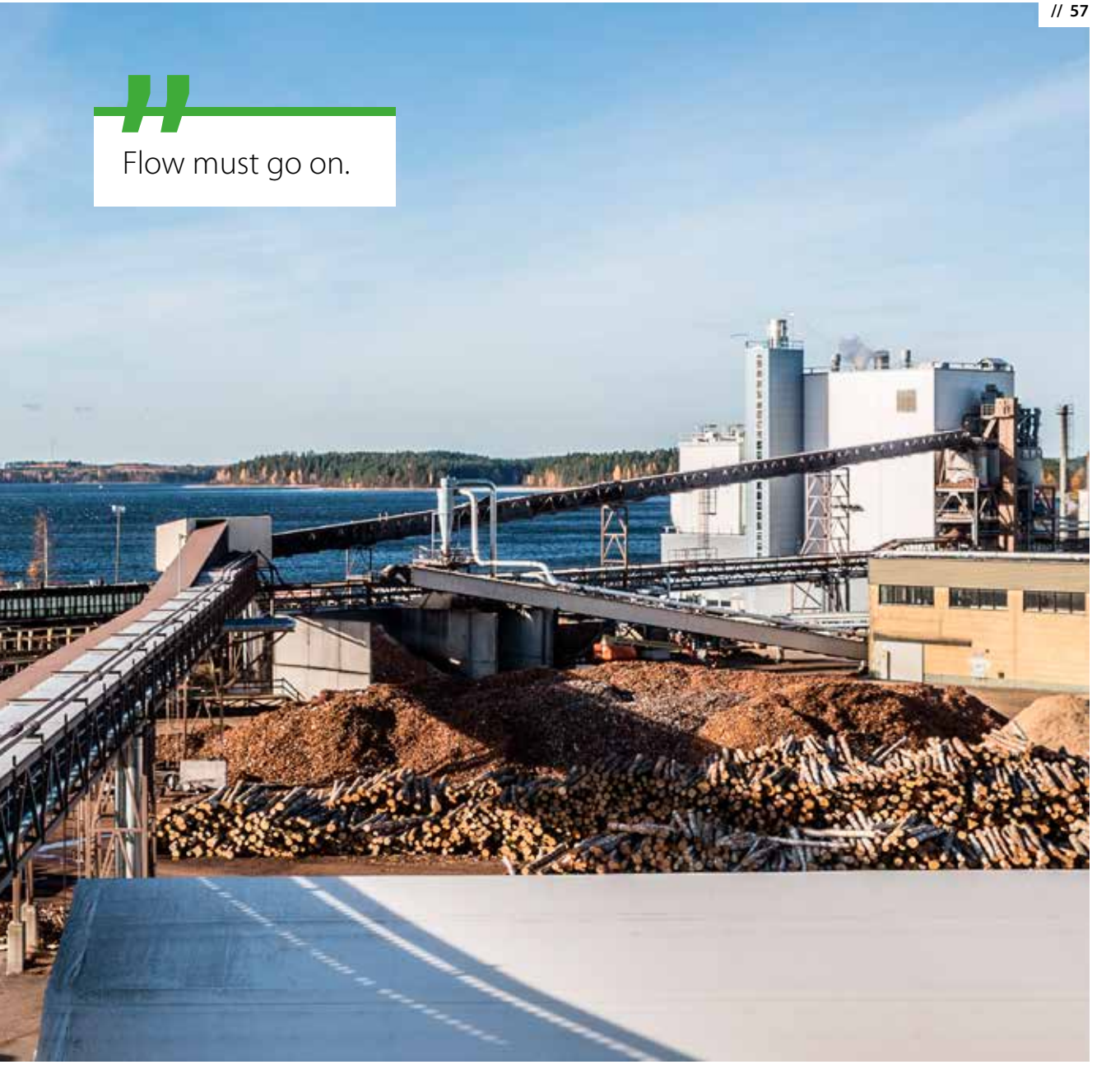
A cleaner world is one of Laitex's key goals. Power plants the world over are phasing out fossil fuels, which has significantly increased the demand for biomass and its processing technologies. Our growth comes from this green revolution.

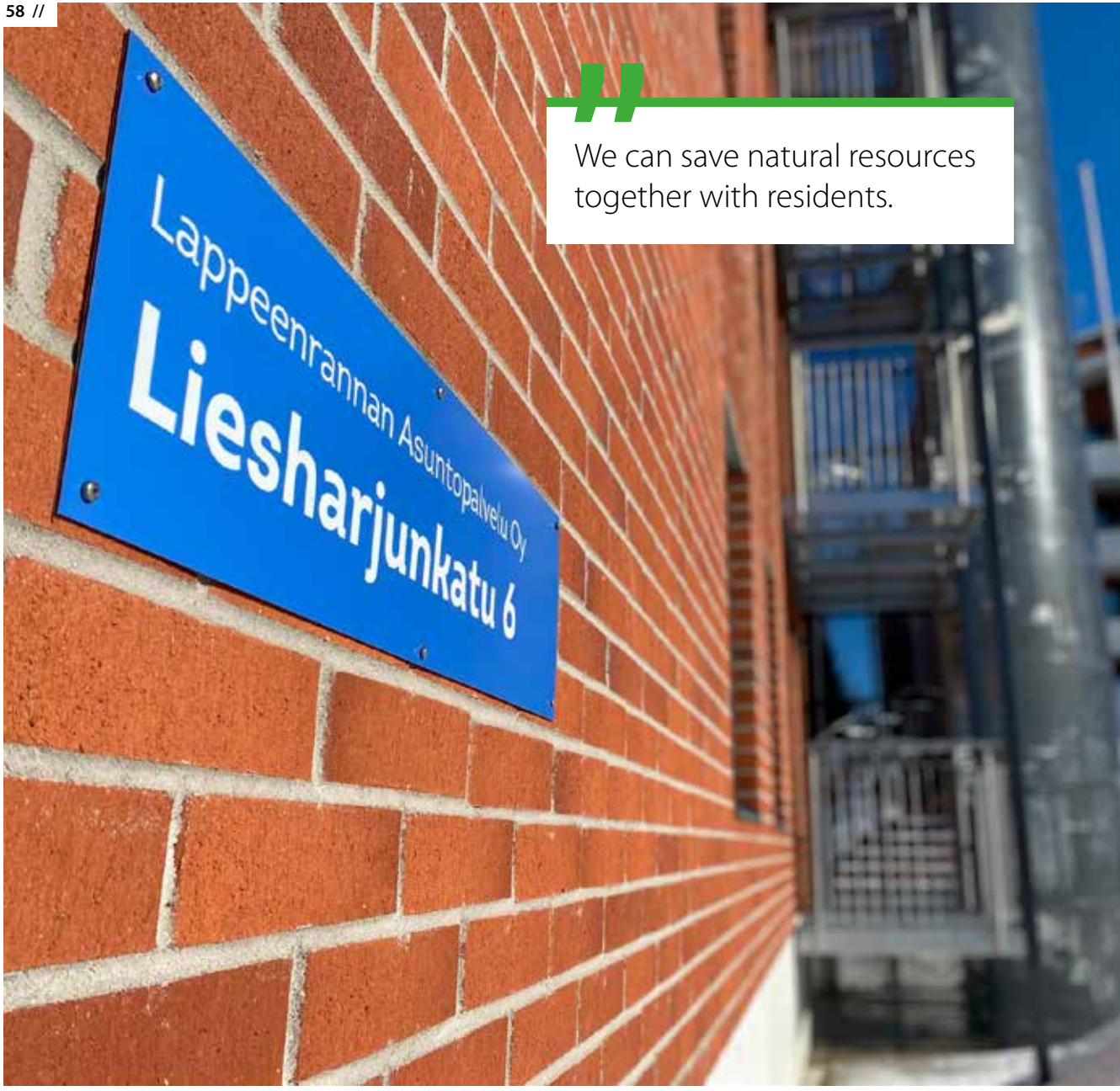
LAITEX OY IS A GLOBAL FAMILY BUSINESS THAT PROVIDES HIGH-QUALITY MATERIAL HANDLING SOLUTIONS WITH OVER 35 YEARS OF EXPERIENCE. LAITEX EMPLOYS MORE THAN 90 PROCESSING INDUSTRY PROFESSIONALS. THE COMPANY HAS OFFICES IN LAPPEENRANTA, VANTAA AND ST. PETERSBURG.

LAITEX
FLOW MUST GO ON

>> www.laitex.fi

Flow must go on.





We can save natural resources together with residents.

Landlord in pursuit of greener housing

LAPPEENRANNAN ASUNTOPALVELU OY WANTS TO TAKE ITS RESIDENTS AND HOMETOWN TOWARDS A CARBON-NEUTRAL TOMORROW.

Approximately 200 properties, 300 buildings, 5,000 rental apartments and 8,000 residents – these figures describe the operations of Lappeenrannan Asuntopalvelu. The company is a large landlord and major property owner that wants to be actively involved in reducing emissions from housing.

– As a company, we are committed to reducing carbon dioxide emissions by 50% by 2025 and by 80% by 2033, says **Martti Mäkelä**, Managing Director of Lappeenrannan Asuntopalvelu Oy.

Asuntopalvelu's first geothermal project, a new apartment building at Liesharjunkatu 6, was completed in the summer of 2020. The company also took a big step in the autumn of 2020 by switching the heating of seven apartment buildings located in the Pulp area in Joutseno from natural gas to pellets.

Asuntopalvelu has also committed to completely giving up oil heating in its buildings by 2025.

The company strives for sustainable quality in new buildings and renovations.

– We also seek to continue the life cycle of buildings with continuous maintenance and adequate repairs. Reducing vacant dwellings is part of environmentally friendly thinking as well.

However, residents play a key role in everyday energy savings.

– We encourage them to use water smartly and to sort waste, for example. This way we can save natural resources together with residents, Mäkelä says.

LAPPEENRANNAN ASUNTOPALVELU OY IS A COMPANY THAT BUILDS AND OWNS RENTAL APARTMENTS AND IS OWNED BY THE CITY OF LAPPEENRANTA. ASUNTOPALVELU MANAGES 5,000 APARTMENTS IN APARTMENT BUILDINGS, TERRACED HOUSES AND ONE-FAMILY HOUSES, WITH A TOTAL OF OVER 8,000 RESIDENTS.

aspakoti.fi
Lappeenrannan Asuntopalvelu Oy

>> www.aspakoti.fi

Cleaner wellbeing at all times

AT LAPPEENRANNAN ENERGIA, WE ARE BUILDING A SUSTAINABLE FUTURE FOR OUR REGION. IN OUR OPERATIONS, WE INVEST IN CLIMATE CHANGE MITIGATION AND TAKE ENVIRONMENTAL CONSIDERATIONS INTO ACCOUNT IN THE PRODUCTION AND DEVELOPMENT OF BOTH PRODUCTS AND SERVICES.

We look strongly towards a green future by reducing our Group's carbon footprint and will be carbon neutral by the year 2026. At that time, our green district heating, produced in an environmentally friendly way with renewable energy sources, is a pioneer in its field and still the most desirable form of heating in our area of distribution. We supply the world's best tap water, which is proven to be clean and exceptionally fresh in taste. In the future, with our most advanced wastewater treatment plant in Europe, the water released to nature will be the cleanest in Finland.

The share of renewable domestic energy sources in our energy production clearly exceeds the national average. Most of our district heating has been produced in an environmentally friendly way as combined production of electricity and heat for more than a decade at Kaukaan Voima's biopower plant. We source carbon dioxide-free district heat from Joutseno at the Adven power plant and wind energy from Suomen Hyötytuuli. In our hybrid energy unit in Rauha, heat is generated for the area by a combination of geothermal- and solar energy and natural gas.

As a responsible operator in the energy and water sector, we are committed to the national energy efficiency agreement. We are actively developing new services to make our customers' daily lives easier. We invest especially in digital customer service channels.

LAPPEENRANNAN ENERGIA IS A GROUP COMPANY WHOLLY OWNED BY THE CITY OF LAPPEENRANTA. LAPPEENRANNAN ENERGIA PRODUCES AND OFFERS WATER- AND ENERGY SERVICES AND MANAGES AND DEVELOPS DISTRIBUTION NETWORKS WITH ITS SUBSIDIARIES LAPPEENRANNAN ENERGIAVERKOT AND LAPPEENRANNAN LÄMPÖVOIMA. WE ARE SHAREHOLDERS IN VÄRE OY, KAUKAAN VOIMA OY, SUOMEN HYÖTYTUULI OY, TUULISAIMAA OY, LÄHITUULI OY, VAINIKKALAN VESI OY, ELVERA OY AND ENERVA OY.

Lappeenrannan energia oy

>> www.lappeenrannanenergia.fi

Our efficient electricity-, heat- and water networks enable progress towards a smart society and smart homes for sustainable development.

Reducing the environmental load of buildings is the sum of many factors.

Business Facilities reduces real estate costs by means of sustainable development

LAPPEENRANTA BUSINESS FACILITIES IS LOOKING FOR SUSTAINABILITY INNOVATIONS SUITABLE FOR REAL ESTATE DEVELOPMENT THROUGH THE GREENREALITY NETWORK.

In total, Lappeenranta Business Facilities Ltd manages more than seven hectares of various business premises. One of the main expenses for the properties is energy.

– We monitor consumption and conditions with different variables. The variables must be such that the measurement results can be converted into euros, says Real Estate Director **Timo Hämäläinen**.

Building services engineering software and software for measuring conditions are used to monitor, for example, heating, lighting, indoor air temperature and quality as well as noise levels at the premises. In the process, factors impacting the carbon footprint, ecological footprint, material losses and the well-being of tenants at the properties are discovered.

Measures that reduce consumption and costs are used to reduce the environmental load of the buildings, as well. Through these measures, the company also aims to significantly improve the usability as well as the working and operating environments of the business premises.

– The use of solar energy is also being considered, but it is still in the early stages, says Hämäläinen.

Business Facilities is involved in the Towards Resource Wisdom pilot project, through the City of Lappeenranta. The goal of the national pilot is to develop an operating model through which cities can reduce greenhouse gas emissions, waste and the use of natural resources, while simultaneously strengthening the region's economy and competitiveness.

LAPPEENRANTA BUSINESS FACILITIES LTD IS A COMPANY WHOLLY OWNED BY THE CITY OF LAPPEENRANTA. BUSINESS FACILITIES PROMOTES BUSINESS CONDITIONS BY BUILDING AND RENTING OUT INDUSTRIAL AND COMMERCIAL PREMISES. IN TOTAL, THE COMPANY HAS APPROXIMATELY 77,500 M^2 OF BUSINESS PREMISES AT 36 DIFFERENT ADDRESSES IN LAPPEENRANTA AND AROUND 100 CORPORATE TENANTS.

yritystila
LAPPEENRANTA

>> www.yritystila.fi

Sustainable success stories are made in Lappeenranta

LAPPEENRANTA IS A WINNER OF THE EUROPEAN COMMISSION'S GREEN LEAF AWARD AND HAS TWICE BEEN SELECTED AS FINLAND'S EARTH HOUR CAPITAL BY THE WORLD WIDE FUND FOR NATURE. WE COOPERATE WITH RESIDENTS, COMPANIES AND EDUCATIONAL INSTITUTIONS TO FIND NEW SOLUTIONS. IN LAPPEENRANTA, WE DARE. AND WE ACT.

The City of Lappeenranta was chosen as one of the greenest cities in Europe in 2020. The European Green Leaf Award is an annual competition organised by the European Commission for cities of less than 100,000 residents with exemplary and progressive climate policy and actions and that invest in green development and job creation.

The operating budget of more than EUR 900,000 for the victory year was financed by the EU Commission, the Ministry of the Environment and UPM Kymmene Corporation. During the year, Lappeenranta organised 40 events and implemented 10 different measures.

– Winning the Green Leaf Award has increased city's the attractiveness and international image as well as created more vitality, says Environmental Director **Ilkka Räsänen**.

Lappeenranta has previously been named Finland's Earth Hour Capital in competitions of the World Wide Fund for Nature in 2014 and 2016 as well as received an award from the Association of Finnish Local and Regional Authorities for climate work.

The City of Lappeenranta is taking action on climate and energy issues, promoting the circular economy, strengthening biodiversity and restoring water bodies.

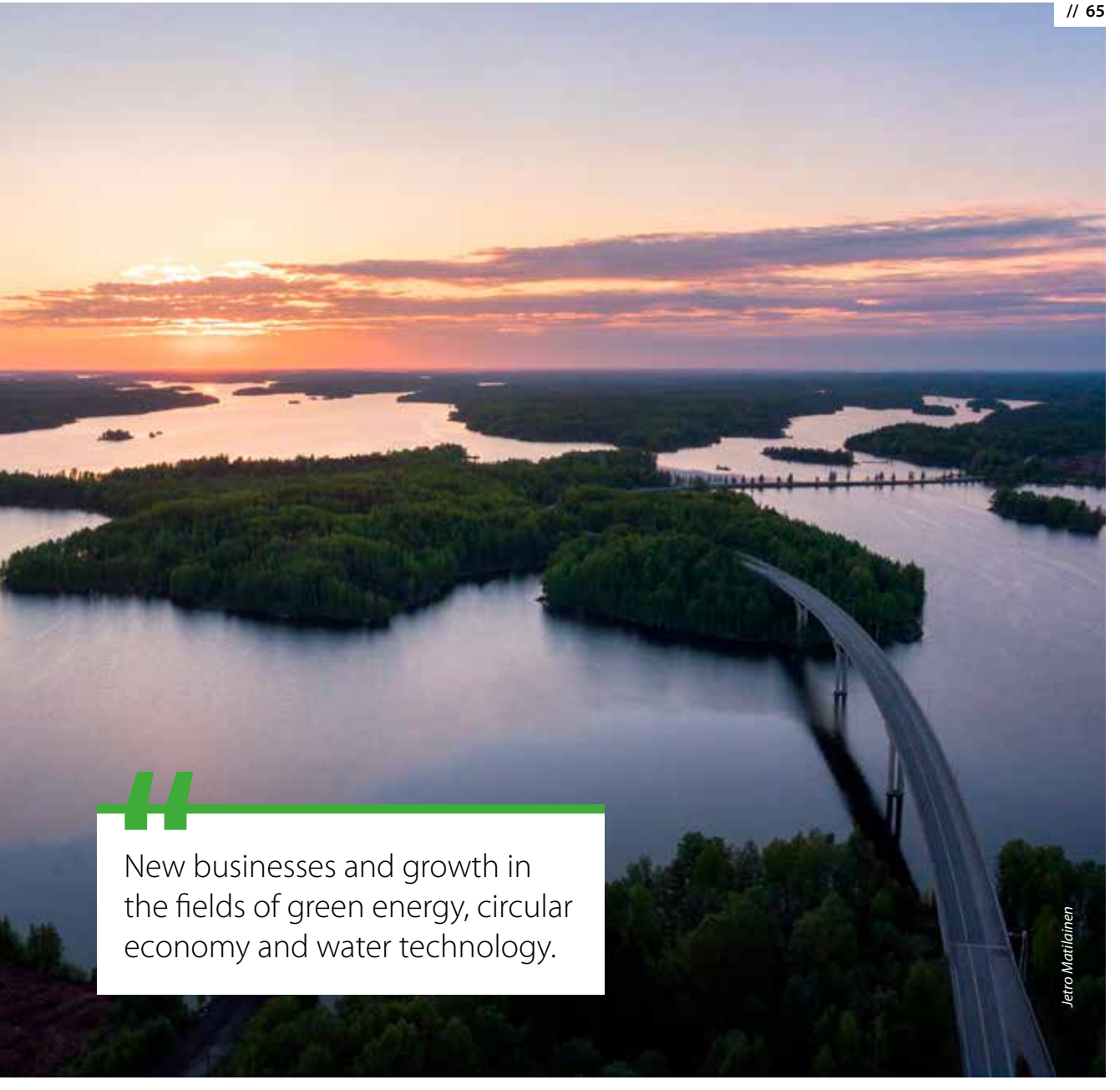
The city is continuously improving the energy efficiency of its own buildings, taking account of the environmental impacts of its own procurement and encouraging residents to do the same.

Lappeenranta was the first city in Finland to start using 100% renewable electricity. The city encourages its residents to produce solar electricity by offering to purchase surplus electricity and installing solar energy equipment in buildings owned by the city.

– Sustainable development and the creation of green growth together with companies, municipalities and the LUT Group are also being accelerated throughout South Karelia via the Greenreality Network, says Development Manager **Markku Mäki-Hokkonen**.

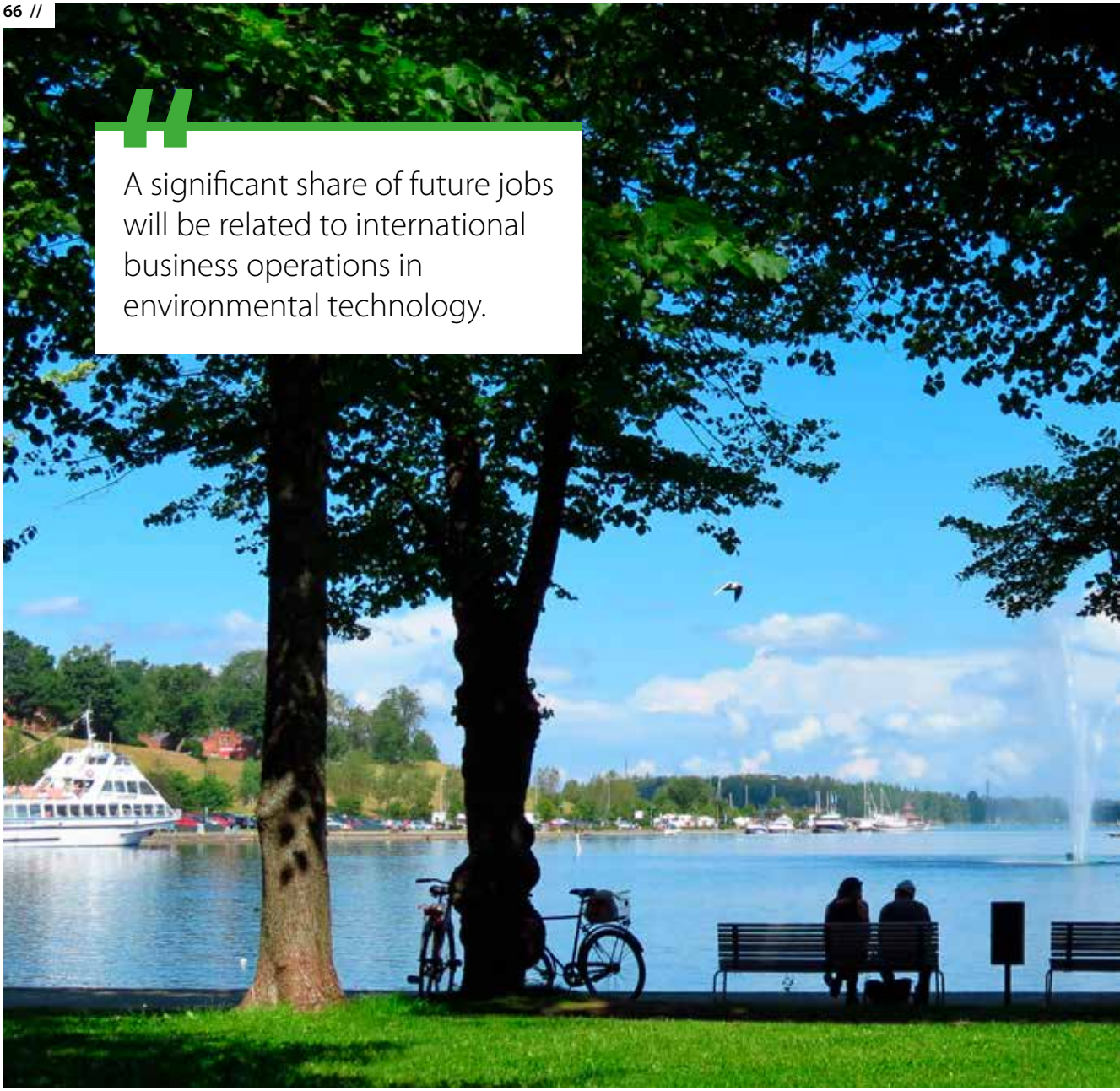
The Greenreality Network is coordinated by the Greenreality services of the City of Lappeenranta. The goal is to develop the concentration of energy and environmental businesses in South Karelia and attract experts and business operators to the area.

The pilot projects implemented in Lappeenranta are aimed at global business operations that would benefit everyone: environmental technology businesses gain references, educational institutions are able to collaborate with various actors, the city is closer to achieving its green goals and the image of the city gets a lift. >>



> New businesses and growth in the fields of green energy, circular economy and water technology.

Jetro Matilainen



> A significant share of future jobs will be related to international business operations in environmental technology.

>>

Significant projects include the Kukkuroinmäki recycling business activities, improvement of the water quality in Lake Saimaa, biogas and methanation plants producing renewable methane and the development of the energy system with a virtual power plant and a new kind of heat accumulator, the synthetic fuel pilot plant in Joutseno as well as the electric motor and equipment testing centre (SCET-LAB) in South Karelia.

Lappeenranta is striving to generate growth and new business operations, particularly in the fields of green electrification, circular economy and water technology.

– Through municipal decision-making, we can affect public procurement and investments, land use, energy production and emissions, thus reducing the environmental impact of the community and enabling businesses to show what they can do, says Development Director **Markku Heinonen**.

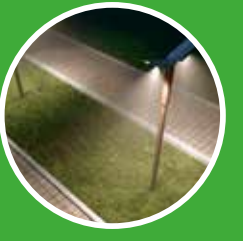
In environmental and energy matters, the city's key partner is the Lappeenranta University of Technology (LUT). Companies that have emerged from LUT's research projects already employ hundreds of people.

LAPPEENRANTA
THE CLIMATE CAPITAL OF FINLAND

Greenreality
LAPPEENRANTA

>> www.lappeenranta.fi

>> www.greenreality.fi



Navigator of a sustainable future

LCA CONSULTING CHANGES THE WORLD MORE SUSTAINABLE ONE CUSTOMER AND PROJECT AT A TIME – WITH STRONG EXPERTISE IN THE ENVIRONMENTAL SECTOR.

LCA Consulting offers high-quality expert services in the environmental sector, such as life cycle assessment, carbon footprint calculation and sustainability training. Through its services, LCA Consulting provides its customers information which supports decision-making and operational development. The provided information enhances environmental performance of customers' operations and supports customers' circular economy and carbon neutrality goals as well as environmental communications.

– During the project, we aim to increase our customers' understanding and management possibilities of the environmental impacts of their own operations. For instance, we can help our customers achieve their circular economy goals by improving the utilisation of side and waste streams, says Managing Director **Antti Niskanen**.

LCA Consulting emphasizes in an in-depth understanding of its customers' needs. The broadest approach involves going through a company's entire production or system, while sometimes the customer only needs an assessment of a specific product or a part of the system or production. Customers represent a wide range of different industries.

– Sometimes the customer may be surprised by the importance and influence of an individual factor for the total results. With the information we provide, our customers' understanding of the big picture increases and becomes clearer.

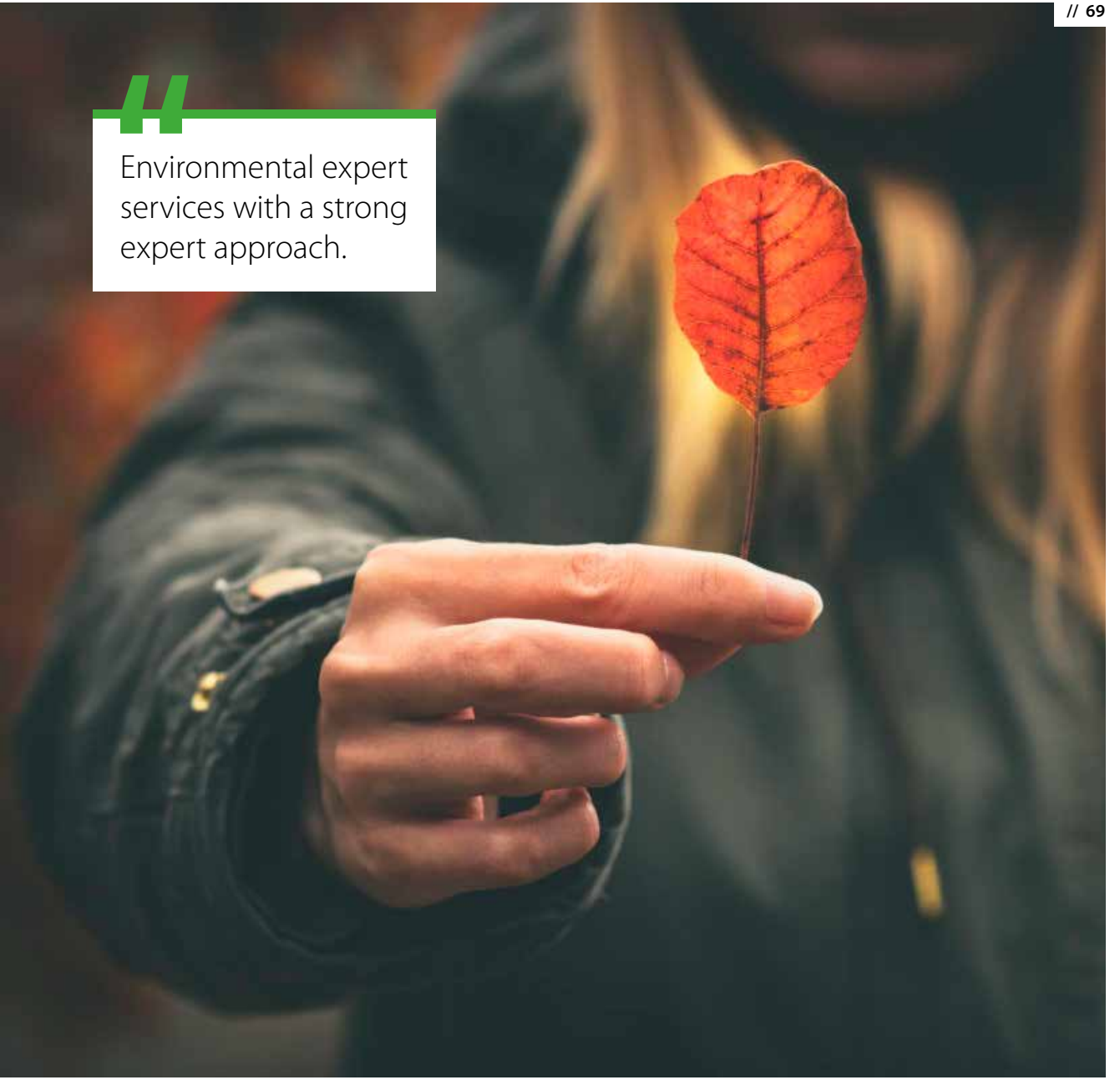
Above all, LCA Consulting aims to improve the vitality of society through its operations.

– We genuinely want to shift the world onto a more sustainable path, both as individuals and as a company, Niskanen says.

LCA CONSULTING PROVIDES HIGH-QUALITY EXPERT SERVICES IN THE ENVIRONMENTAL SECTOR, INCLUDING LIFE CYCLE ASSESSMENT, CARBON FOOTPRINT CALCULATION AND SUSTAINABILITY TRAININGS FOR COMPANIES, WASTE MANAGEMENT, MUNICIPALITIES AND THE PUBLIC SECTOR. FOUNDED IN 2013, THE COMPANY IS LOCATED IN LAPPEENRANTA AND SERVES CUSTOMERS BOTH NATIONALLY AND INTERNATIONALLY.

LCA CONSULTING

>> www.lca-consulting.fi/en



Environmental expert services with a strong expert approach.

> By its example, **LOAS** aims to permanently transfer the principles of sustainable thinking to its young residents.

Sustainable living and sharing economy in student housing

SHARED-USE CARS AND BICYCLES AVAILABLE FOR TENANTS

Lappeenranta Student Housing Foundation (LOAS) builds and maintains Finland's greenest student housing community. LOAS has been actively experimenting with various solutions to improve energy efficiency. Different buildings use, among other things, geothermal heat, air-water heat pumps, solar power and heat recovery ventilating. Consumption-based billing, which involves tenants paying for electricity and water according to their own consumption, is also used to strive for reduced energy consumption.

LOAS also promotes the sharing economy by providing shared-use cars for its tenants. At the moment, cars are available in five different locations. In addition, LOAS was involved in acquiring shared-use bicycles for Lappeenranta, and there are shared-use bicycle stations in the yard of almost every LOAS location.

By its example, LOAS aims to permanently transfer the principles of sustainable thinking to its young residents. Energy consumption optimised to the best level possible can be maintained through monitoring and maintenance. The energy efficiency of buildings plays a major role in the planning of renovations and major improvements. Everything that can be is recycled, collection points for plastic, etc. have been added to all locations – and even partners are expected to employ energy-efficient solutions.

Future plans include increasing the amount of geothermal heat and solar power, as well as heat recovery from the property's wastewater. Consumption monitoring will also be improved, with other solutions tried while keeping an open mind. All the electricity and district heating LOAS purchases are carbon neutral produced.

LAPPEENRANTA STUDENT HOUSING FOUNDATION (LOAS) IS A NON-PROFIT ORGANISATION WHICH ADMINISTERS MORE THAN 80 STUDENT BUILDINGS IN LAPPEENRANTA. LOAS PROVIDES HOUSING FOR ALMOST 3,200 STUDENTS.

LOAS.fi

>> www.loas.fi

A sustainable future is created today

LUT UNIVERSITY EMPLOYS SCIENCE TO ANSWER QUESTIONS REGARDING THE FATE OF HUMANKIND.

One of the most important issues of our time is climate change. LUT is creating a solution to it: a system based completely on renewable energy, where zero-emission and low-cost energy is available everywhere and to everyone without restriction.

To bring climate change to a halt, energy production must be emission-free by 2050 – an objective recorded in international agreements. This transformation will change the energy sector from a raw material business to a technology and service business.

– The electrification of the entire energy system and the storage of energy are key issues, but the opportunities created by new business models and their social and economic impact are at the very least equally important. Finland has everything it takes to be an engine for this energy breakthrough, says **Olli Pyrhönen**, Professor of Electrical Engineering and Dean of the School of Energy Systems at LUT.

LUT's Lappeenranta campus works as a research platform for the zero-emission energy system: the university's solar power plants provide electricity to a smart electricity grid, which has integrated energy reserves. The energy is stored in batteries and converted to synthetic fuel for later generation of electricity.

In addition to groups of different disciplines, research is carried out at LUT on multidisciplinary research platforms, with the latest information utilised in the teaching of economics and technology. This pioneering attitude and solutions to tackle climate change have also gained international attention.

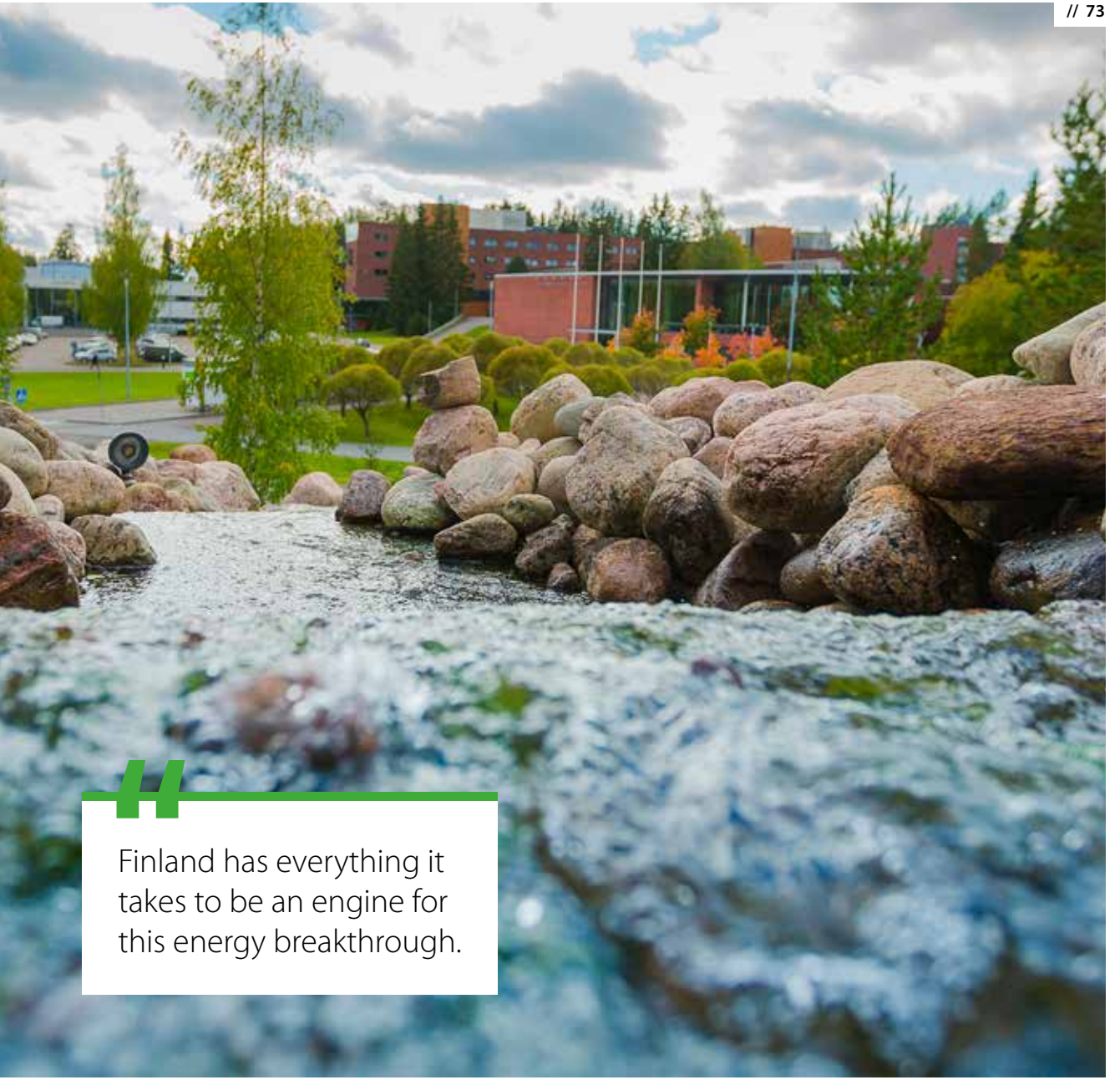
The results of the research are now translating to concrete new business activities and business partnerships. LUT University's research annually yields many inventions and business ideas that different actors can take advantage of and implement. LUT's cooperation with the business world has produced a number of successful start-ups and spin-offs that directly and indirectly employ hundreds of people in the region.

LUT is the engine and the driver of the Greenreality network. LUT helps the members of the network to develop their current activities into a more sustainable direction and cooperates with them in research and innovation at a high level.

CLEAN ENERGY, WATER AND AIR ARE LIFE-GIVING RESOURCES FOR WHICH WE AT LUT UNIVERSITY SEEK NEW SOLUTIONS WITH OUR EXPERTISE IN TECHNOLOGY AND BUSINESS. WE HELP SOCIETY AND BUSINESSES IN THEIR SUSTAINABLE RENEWAL. OUR INTERNATIONAL COMMUNITY CONSISTS OF 6500 MEMBERS. OUR CAMPUSES ARE IN LAPPEENRANTA AND LAHTI, FINLAND.

LUT University

>> www.lut.fi



> Finland has everything it takes to be an engine for this energy breakthrough.

> The wood chips used in the production of district heating are purchased from local forest owners.

Renewable energy generates vitality for Luumäki

95 PERCENT OF THE DISTRICT HEATING USED IN LUUMÄKI IS PRODUCED FROM WOOD.

The Luumäki biopower plant was launched in 2016. The old natural gas power plat became a reserve power plant. With that, the energy self-sufficiency of the municipality of Luumäki increased sharply, as 95 percent of district heating is produced from wood chips.

The energy wood used as raw material is purchased from local forest owners.

The production chain of the biopower plant comprises local forest owners and machine and transport entrepreneurs and the forest management association that is responsible for timber procurement.

– Energy self-sufficiency has an important impact on employment in a small community, says Mayor **Risto Alaheikka**.

The possibility of producing biogas is investigated in a company established in Luumäki.

Before the biopower plant was built, the impact of renewable energy on the environment was also investigated.

– Having a local secretary of environmental protection is key. Clean nature and lakes are our strengths, Ms Ukkonen says.

For a small municipality, the use of renewable energy is also a matter of image. The modern energy solutions and improved Highway 6 that leads to Lappeenranta and is currently being improved may generate more interest in Luumäki and attract new residents.

The municipality is promoting renewable forms of energy and the know-how of local enterprises by arranging the annual "plot market", for example.

LUUMÄKI HAS AROUND 5,000 INHABITANTS. IN THE SUMMER, THE NUMBER IS TRIPLED, THANKS TO SUMMER RESIDENTS. THE RATE OF SELF-SUFFICIENCY IN JOBS IS MORE THAN 80%. AS SIGNIFICANT PORTION OF THE INHABITANTS EARN THEIR LIVING FROM FORESTRY.

LUUMÄKI

>> www.luumaki.fi

Global frontrunner in sustainability

METSO OUTOTEC DEVELOPS ADVANCED TECHNOLOGY AND SERVICES FOR BETTER UTILISATION OF NATURAL RESOURCES AND AIMS TO BE LEADER IN SUSTAINABILITY.

Sustainability is a strategic priority for Metso Outotec. Metso Outotec targets improving the environmental efficiency of its customers' operations and at the same time reducing the environmental footprint of its own operations. In the centre of this thinking is Planet Positive, Metso Outotec's holistic way of looking at sustainability. As environmental requirements become more stringent, water- and energy-saving processes and solutions as well as improving waste management have enormous global potential.

Metso Outotec's Planet Positive portfolio includes more than 100 producs, and in 2020, the customers reduced their emissions by a total of over 8 million tonnes by using Metso Outotec's technologies: the amount equivalent to the average annual emissions of approximately 750,000 Finns. Metso Outotec also puts efforts in minimising the environmental impact of its own operations and supply chain.

Metso Outotec Lappeenranta site manufactures a large share of the filters used for the most demanding applications in many industries.

– The goal of our research and development work is to develop resource-efficient technologies and different kinds of related services, including long-term operating and maintenance services for all stages of the industrial plants' life-cycle and processes that reduce the load on the environment and the globe in general, says Director **Janne Kauppi** from Metso Outotec's Lappeenranta unit.

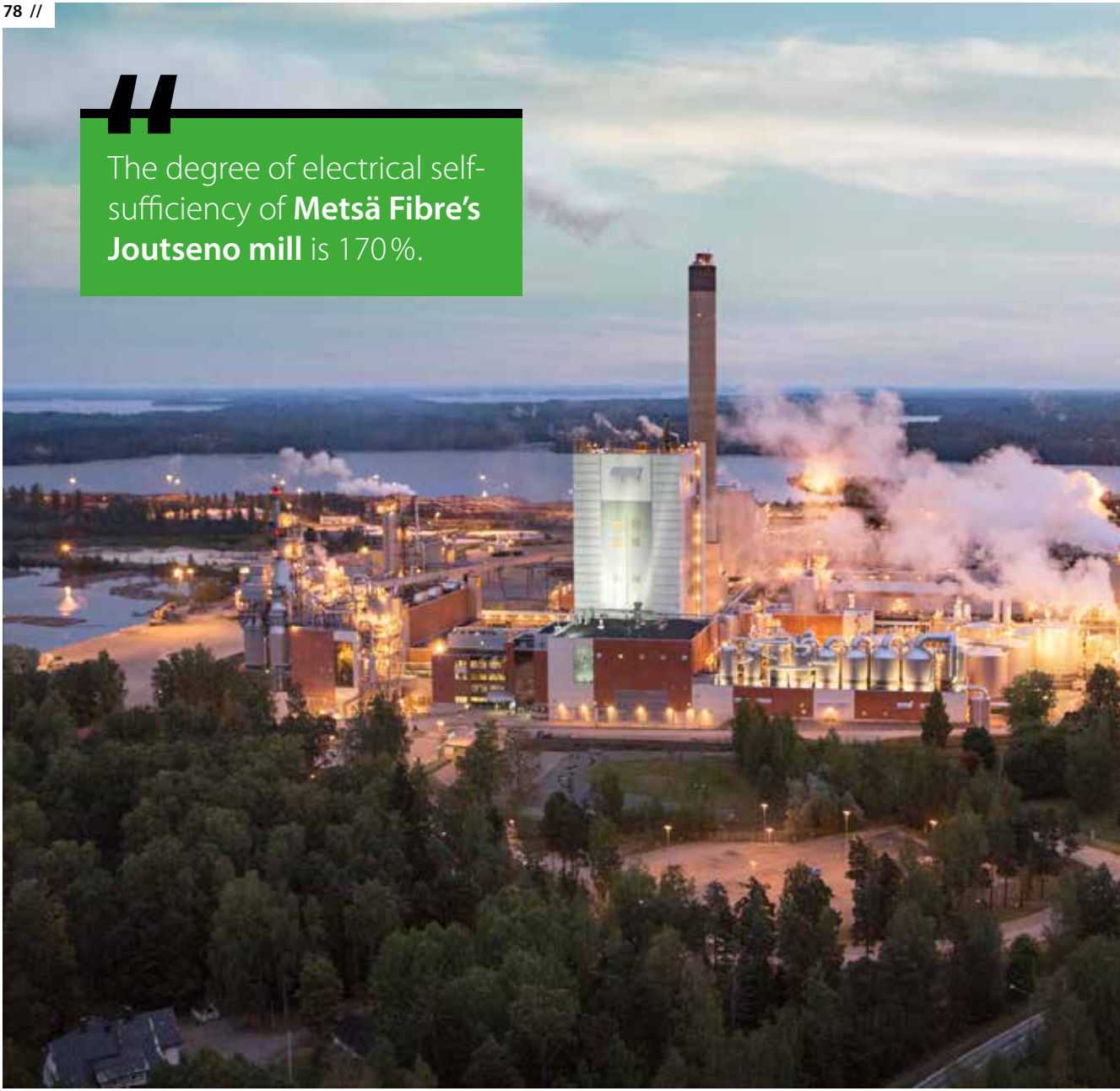
– Sustainability is a positive growth and business development opportunity for Metso Outotec. We want to be part of the regional network promoting sustainable development, says Kauppi.

METSO OUTOTEC IMPROVES CUSTOMERS' ENERGY- AND WATER EFFICIENCY, REDUCES THEIR EMISSIONS, INCREASES PRODUCTIVITY AND DECREASES ENVIRONMENTAL RISKS WITH SUSTAINABLE TECHNOLOGIES. METSO OUTOTEC IS COMMITTED TO LIMITING GLOBAL WARMING INTO 1.5°C AND HAS SET SCIENCE-BASED TARGETS FOR IT'S OPERATIONS.

Metso:Outotec

>> www.mogroup.com/fi

Metso Outotec enables sustainable modern life.



> The degree of electrical self-sufficiency of **Metsä Fibre's Joutseno mill** is 170 %.

Leading producer of bioproducts

METSÄ FIBRE, PART OF METSÄ GROUP, IS A LEADING PRODUCER OF WOOD-BASED BIOPRODUCTS SUCH AS PULP, SAWN TIMBER, BIOCHEMICALS AND BIOENERGY. FOSSIL MATERIALS CAN BE REPLACED WITH THESE BIOPRODUCT.

Company produces pulp and bioproducts at four mills in Finland, and sawn timber products at five sawmills in Finland and one sawmill in Russia. One of Metsä Fibre's pulp mills is located on the shores of Lake Saimaa in Joutseno. The mill's main product is high-quality softwood pulp for board, tissue and printing papers and speciality products. Mill´s softwood pulp is made of both sawmill chips and Nordic pine and spruce sourced from sustainably managed forests. The wood raw material is always fully traceable.

In addition to softwood pulp, the Joutseno mill produces biochemicals used in industrial production, cleaning agents and the food industry to replace fossil-based raw materials. The energy-efficient mill produces more bioenergy than it needs. In addition to using renewable energy in own production, the mill supplies it as electricity to the grid, for example.

The lime kiln at the Joutseno mill is running by bark-based product gas. Thanks to this, the mill does not use fossil-based fuels during normal operations. Metsä Fibre develops it mills through systematic investment to ensure safe and efficient mill operations and good environmental performance.

METSÄ FIBRE'S PULP MILL IN JOUTSENO, LAPPEENRANTA, PRODUCES HIGH-QUALITY SOFTWOOD PULP, BIOCHEMICALS AND BIOENERGY. MOST OF THE PULP FROM THE MILL IS EXPORTED. THE MILL EMPLOYS AROUND 140 METSÄ FIBRE EMPLOYEES, AND DOZENS OF EXPERTS FROM PARTNER COMPANIES WORK AT THE MILL SITE.

Metsä

Real estate management's brave pioneer

MITRA OY PROVIDES REAL ESTATE SERVICES FOR INDIVIDUALS AND COMPANIES IN THE CITY OF IMATRA AND THEY STEER THE CITY BUILDING TOWARDS A MORE SUSTAINABLE TOMORROW.

Finland's largest wooden school that is being built in accordance with the life cycle model, its use of steel mill waste in road structures and its replacement of old real estate with modern space solutions are examples of the significant climatic acts of Mitra.

Mitra's core activities are corporate and business premises management, rental and partially owned properties, hosting, construction and real estate management.

– We are ready to meet all kinds of challenges and we look for answers in an open-minded and unprejudiced manner. We solve the problems of companies, the city and the citizens in real estate-related matters, says **Lassi Nurmi**, CEO of Mitra.

Energy efficiency and efficient use of energy are key factors in the operation of Mitra. The company has drastically reduced the repair debt of existing buildings and improved energy efficiency with initiatives both large and small.

– Energy consumption has been reduced via the installation of LED lights, changes in heating systems and window reparations, among other things. All repairable properties have already been repaired. We are replacing the unrepairable properties with new ones that are more efficient and which utilise new technologies.

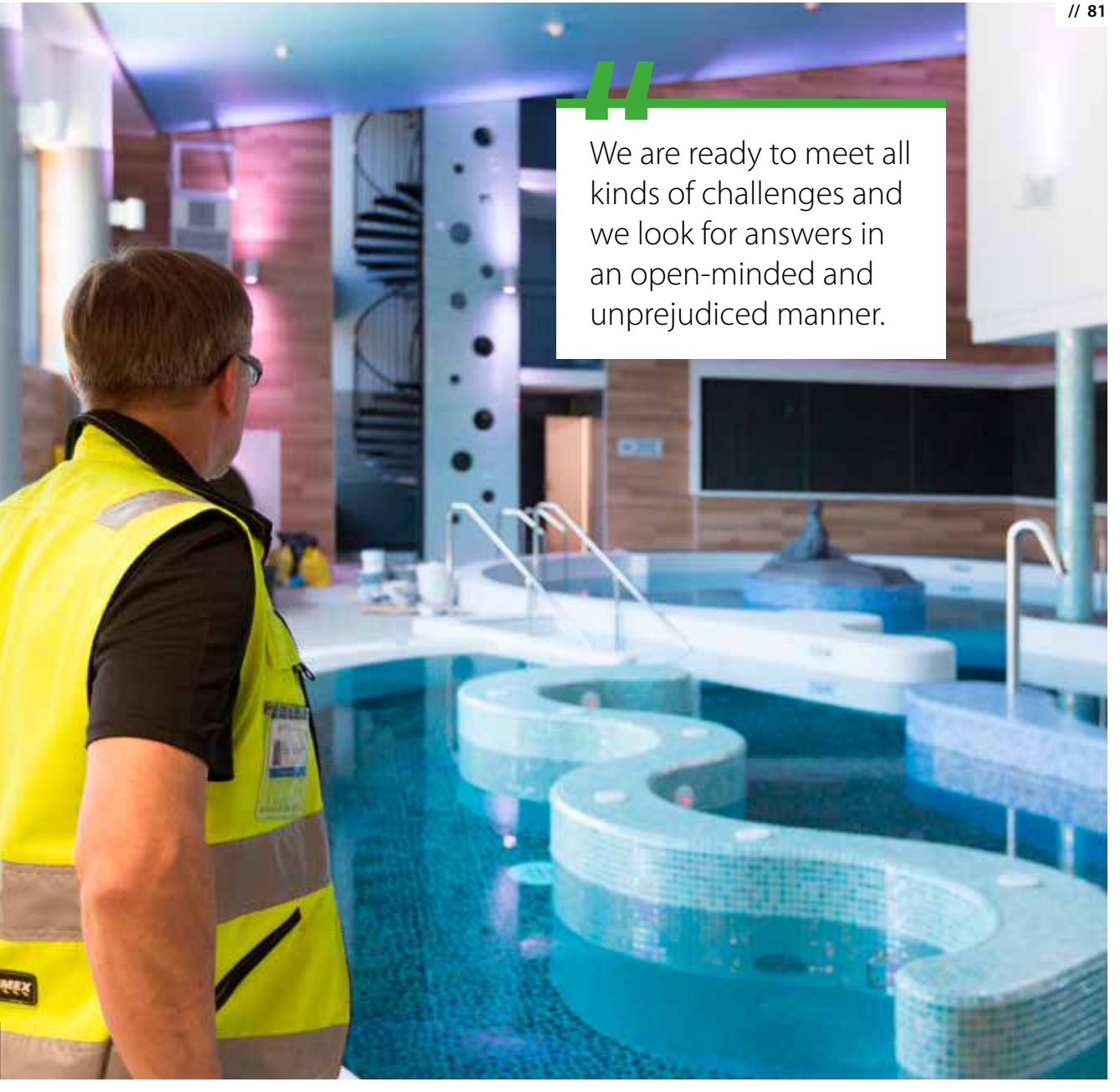
Mitra will invest in the opportunities brought by digitalisation in the future.

– We continue to develop real estate automation, and we are bringing solar energy solutions to our properties increasingly over time. The real estates will also include, for example, digital steerability, which gives us more information regarding needed procedures. We also take the charging plugs for electric vehicles into consideration in all construction activities, says Nurmi.

MITRA IS THE LEADING REAL ESTATE ORGANISATION IN THE REGION AND IMATRAN SEUDUN YRITYSTILAT OY, IMATRAN TOIMITILAT OY AND IMATRAN VUOKRA-ASUNNOT OY OPERATE UNDER IT. MITRA TAKES CARE OF THE MANAGEMENT OF ITS REAL ESTATE COMPANIES, THEIR CUSTOMER SERVICE, PROPERTY MANAGEMENT, MAINTENANCE AND CONSTRUCTION PROJECTS. IN ADDITION, MITRA HANDLES THE CONSTRUCTION AND REGIONAL MANAGEMENT SERVICES COMMISSIONED BY THE CITY OF IMATRA.

MITRA

>> www.mitra.com



> We are ready to meet all kinds of challenges and we look for answers in an open-minded and unprejudiced manner.

> The technology allows sludge to be treated where it is generated.

Recycled fertiliser products from organic side streams

NANOPAR OY MANUFACTURES RECYCLED FERTILISER PRODUCTS BASED ON SUSTAINABLE DEVELOPMENT FROM ORGANIC SIDE STREAMS. THE PUUMALA-BASED COMPANY IS EMBARKING ON THE EUROPEAN MARKET.

Nanopar's technology is based on infrared drying of sludge generated in industry and at wastewater treatment plants. The solid matter content of sludge dried using the Paskíer® process is over 90%. The technology allows sludge to be treated where it is generated.

– The Paskíer® equipment is taken directly to the treatment plant. It is compact and affordable, and provides direct cost savings to the customer by eliminating the costs from transporting sludge and gate fees. The payback period for the equipment is 2–3 years, says Nanopar CEO **Jaakko Kuntonen**.

Untreated sludge contains on average 20% solids and 80% water. Nanopar's technology evaporates water from sludge more efficiently than other thermal treatment methods.

– The evaporation of one litre requires about 1 kWh of energy with conventional drying methods.

Our technology evaporates two litres of water with the same amount of energy.

The dried sludge can be used as such as a soil improver. For use as fertiliser, the dried sludge is ground and various nutrients are added to it as needed. Fertiliser use is governed and limited by legislation. Nanopar fertiliser products meet the fertiliser legislation.

At this stage, the company is focusing on Nordic treatment plant operators and biogas plants. In the future, the company will be making an impact throughout the EU.

– We are bringing the technology to the plants so that fertiliser products are made on the spot, and the customers are local farmers, Kuntonen says.

NANOPAR OY DEVELOPS ECONOMICAL AND COMPACT INFRARED DRYER SOLUTIONS FOR THE MINING AND PROCESS INDUSTRIES AND MUNICIPAL WASTEWATER TREATMENT PLANTS. THE TECHNOLOGY ALLOWS NANOPAR TO PRODUCE RECYCLED FERTILISER PRODUCTS FROM THE ORGANIC SIDE STREAMS OF INDUSTRY AND MUNICIPAL WATERWORKS.

nanopar

>> www.nanopar.fi

Towards a carbon-neutral Finland one project at a time

NEOEN RENEWABLES FINLAND OY IS ONE OF THE WORLD'S FASTEST GROWING PRODUCERS OF RENEWABLE ENERGY AND A MAJOR GLOBAL OPERATOR.

The French-owned Neoen has been operating in Finland since 2018. It develops, finances, builds and operates solar power plants, wind farms and battery storage facilities. Neoen is also responsible for the operation of the wind farms it builds throughout their life cycle.

– Our operations in Finland cover the wind farm under construction in Mutkalampi, the Hedet wind farm in Närpiö, and the largest battery in continental Europe so far in Yllikkälä, Lappeenranta. It is the first high-power battery connected to Finland's electricity grid, says **Miika Pilli**, head of the Finnish development team.

Neoen plans projects to generate affordable electricity in a way that benefits the environment and takes the local community into account.

– For us, sustainable energy production means that power plants are built and operated sustainably as well, including from the perspective of landowners and local residents, he says and continues:

– During the development phase of projects, we look into the project's production potential, soil quality and environmental impact, among other things. This allows the project to be built to suit local conditions. We consult with various stakeholders, such as neighbouring residents, landowners, authorities and local decision-makers.

In the coming years, the company is aiming for a total capacity of one gigawatt from Finland. Finland is one of the most important countries for Neoen globally. According to Pilli, the goal will be achieved through active development of wind power, solar power and battery systems.

– The South Karelia region is important to us not only in terms of the Yllikkälä battery, which is already in operation and is significant for Finland as a whole, but also with respect to other growth potential. We want to be involved in making an impact and cooperating with other actors in the development of the region. The Greenreality Network provides an excellent framework for this.

FOUNDED IN 2008, THE FRENCH COMPANY NEOEN IS ONE OF THE WORLD'S LEADING PRODUCERS OF RENEWABLE ENERGY. THE COMPANY PRODUCES COMPETITIVELY PRICED ENERGY IN A SUSTAINABLE AND LARGE-SCALE MANNER, OPERATING ON FOUR CONTINENTS AND IN 15 DIFFERENT COUNTRIES. THE COMPANY IS AIMING FOR A CAPACITY OF 10 GW BY THE END OF 2025. NEOEN IS LISTED ON THE MAIN LIST OF THE PARIS STOCK EXCHANGE.

NEOEN

>> www.neoen.com/en/neoen-finland

We produce the most competitive renewable electricity sustainably, in all of our market areas.

Energy consumption down and comfort up.

Enabler of self-sufficient energy production

PROHEAT OY REDUCES THE CARBON FOOTPRINT OF PROPERTIES AND IMPROVES ENERGY EFFICIENCY BY INCREASING THE ENERGY SELF-SUFFICIENCY OF ITS CUSTOMERS.

The company carries out energy management and improvement renovations of properties and supplies geothermal and hybrid systems for the heating and cooling of large properties.

– We want to enable an energy revolution for our customers, says the company's owner **Timo Lappalainen**.

By energy revolution, he means self-sufficient energy production where the energy is consumed – in properties of different sizes. Proheat's heat pump solutions reduce the customer's purchased energy bill, which directly affects the company's business result.

– We also increase comfort by improving conditions: provide more efficient cooling in the summer and keep the temperature suitable in the winter. We are also able to improve safety and accessibility, for example, by de-icing slippery areas.

Geothermal heat as a solution protects the environment as well, as its carbon dioxide emissions are considerably lower than those of fossil fuels. In addition, it can be connected to other energy production, such as heat recovery and solar energy.

– Our systems are of high quality and represent the latest technology. We continuously monitor developments to stay on the crest of the wave. We offer a functional and efficient service as a whole, Lappalainen says.

Proheat delivers geothermal heat packages effortlessly on a turnkey basis. Services include investment calculations and applying for investment subsidies on behalf of the customer, as well as project planning, implementation and maintenance. This allows customers to focus fully on their own business.

PROHEAT OY IS A COMPANY FOUNDED IN 2005 THAT DELIVERS GEOTHERMAL HEATING SYSTEMS ON A TURNKEY BASIS TO INDUSTRY, HOUSING COMPANIES, CONSTRUCTION FIRMS AND PROPERTY OWNERS. THE COMPANY ALSO PROVIDES PROPERTY ENERGY MANAGEMENT, COOLING, ADAPTIVE SOLAR ENERGY SYSTEMS AND CONSULTING. PROHEAT OPERATES IN THE SOUTH KARELIA AND LAHTI REGION AS WELL AS IN THE HELSINKI METROPOLITAN AREA.

PROHEAT

>> www.proheat.fi

Towards a sustainable future – Nordic expert partner knows the way

CONSIDERATION OF ENVIRONMENTAL IMPACTS IS CENTRAL TO ALL OF REJLERS FINLAND'S ACTIVITIES.

Rejlers Finland Oy supports its customers with environmental, energy efficiency and energy production challenges. The company provides measurement services and analyses, energy efficiency consultancy services, preliminary surveys and project plans. Rejlers is an expert in emissions trading and energy procurement consulting. The company's services are employed by almost a million energy users.

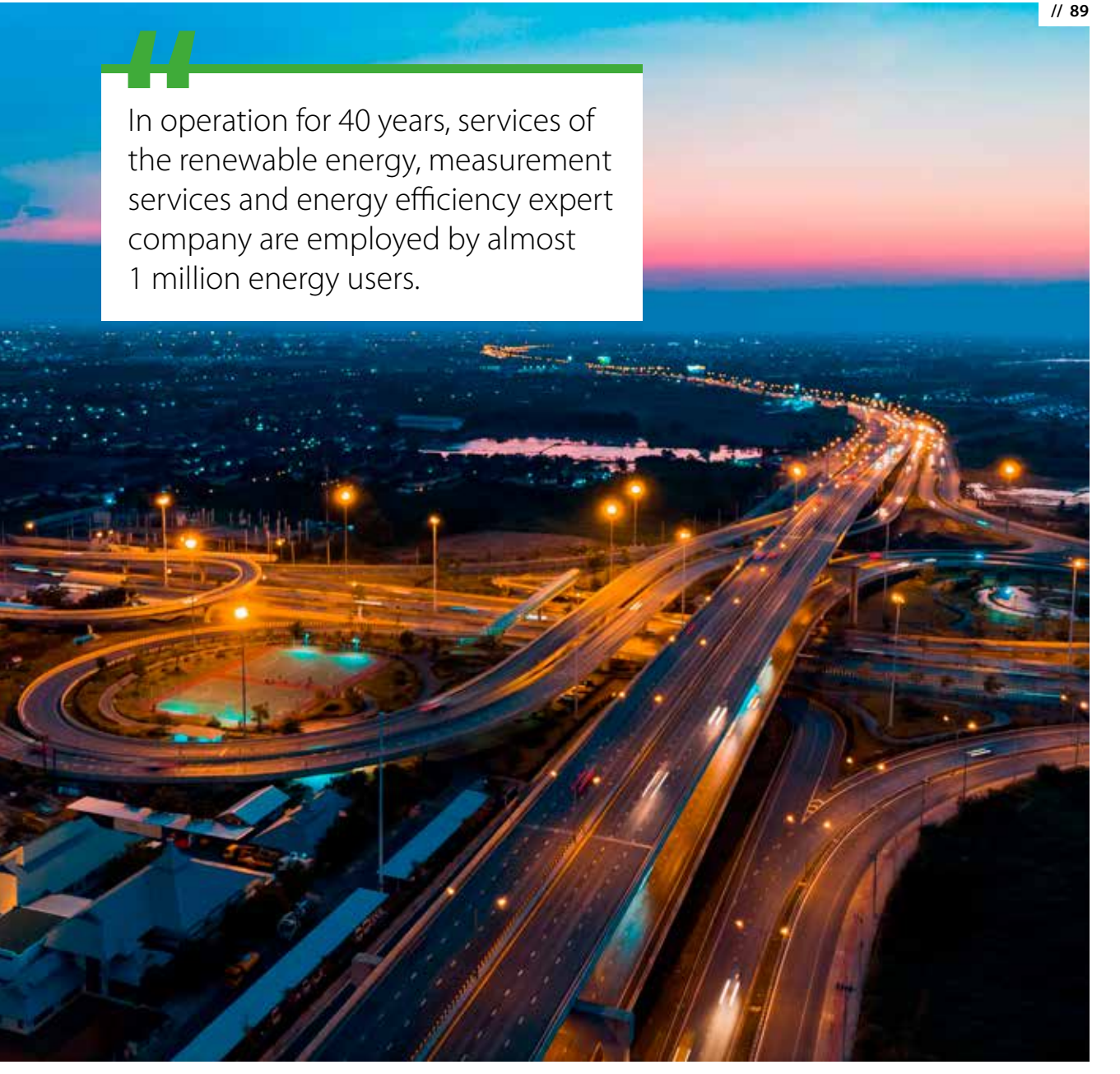
Rejlers' energy efficiency services help customers to reduce real estate energy consumption and costs. The company provides the whole range of energy management services from mapping to consumption monitorin, analytics and development services. Systematic development of energy efficiency provides a sustainable basis for the future.

Rejlers also has extensive experience of renewable energy services. In addition to wind power initiatives, Rejlers is experienced expert service provider for sun energy parks and small-scale production. The company's services cover initiatives from start to finish – from profitability assessments and technical specifications to planning, development and maintenance. Rejlers also provides measurement and reporting services.

REJLERS IS AN INTERNATIONAL COMPANY PROVIDING A DIVERSE RANGE OF ENGINEERING SERVICES COMBINING ICT AND ENGINEERING EXPERTISE. REJLERS OFFERS ITS CUSTOMERS DIGITAL SERVICE AND PROJECT SOLUTIONS, AS WELL AS CONSULTING SERVICES FOR THE INDUSTRIAL, ENERGY, BUILDINGS AND INFRASTRUCTURE SECTORS. THE FINNISH COMPANIES IN REJLERS GROUP RECORDED NET SALES OF EUR 73 MILLION IN 2019. REJLERS FINLAND IS A PART OF THE NORDIC REJLERS AB COMPANY. THE COMPANY BEGAN OPERATING IN MIKKELI IN 1980. CURRENTLY, REJLERS OPERATES IN 20 LOCATIONS IN FINLAND AND EMPLOYS NEARLY A THOUSAND EXPERTS.

REJLERS

>> www.rejlers.fi



In operation for 40 years, services of the renewable energy, measurement services and energy efficiency expert company are employed by almost 1 million energy users.

Roxia has achieved ISO 9001:2015 quality certificate.

Increased energy efficiency by advanced process analysis

ROXIA ENERGY-EFFICIENT SOLUTIONS ARE MADE TO ENDURE THE MOST EXTREME CONDITIONS. LIFE CYCLE AND ENERGY EFFICIENCIES ARE MAXIMIZED ALREADY IN THE MANUFACTURING PHASE OF THE EQUIPMENT.

Roxia delivers high-tech dewatering, industrial automation and environmental technologies. Specializing in mining, minerals, metallurgy, chemical, food and pharmaceutical industries, our team generates best performing solutions for each specific need. Roxia products and services are enhanced with Digital Services (IIoT) to optimize production and improve plant energy efficiency. Roxia new Environmental Technologies -platform extends Roxia services to flow conditioning, providing technology solutions for water and sludge treatment. We offer processes that aim to generate savings in waste and process fluid handling while promoting overall safety.

Roxia supports customer's business operations by offering solutions that withstand demanding conditions now and in the long run. Our products are known for high performance and energy-efficiency. Our solutions significantly save both operating and maintenance costs and the environmental impact of logistics, spare parts and dismantling.

Roxia has ISO9001:2015 Quality and ISO14001:2015 Environment multisite certificates.

ORIGINATING FROM LAPPEENRANTA, FINLAND, ROXIA HAS SUBSIDIARIES IN AUSTRALIA, CHILE, PERU, CHINA, REPUBLIC OF SOUTH AFRICA, RUSSIA, SWEDEN AND UNITED STATES. ALMOST 80 % OF COMPANY TURNOVER COMES FROM OUTSIDE FINLAND.

ROXIA

>> www.roxia.com

Sustainably trained workforce for the region

SAIMAA VOCATIONAL COLLEGE SAMPO PROVIDES HIGH-QUALITY VOCATIONAL TRAINING FOR THE NEEDS OF BUSINESSES IN THE REGION AND NATIONWIDE. SUSTAINABILITY IS PART OF ALL ACTIVITIES AT SAMPO.

– At Sampo, our principle is to promote the health and safety of our employees and students, the environment and society as a whole. One of the most important goals of our work is to increase students' knowledge and thinking about sustainable development, says Quality Coordinator **Anne Tuosa**.

– Sustainability is also an important part of students' on-the-job learning, and the employer's social and environmental responsibility is taken into account when assessing the suitability of the job, Tuosa continues.

Sampo has a coordination team for sustainable development that updates the institution's sustainable development action plan and prepares development measures annually. The team works closely with teachers, students and the institution's partners.

– At our college, students study for themselves and their future, not simply for the sake of a degree. Thats' why it is important to listen to all parties, says Deputy Rector **Pekka Turunen**.

Above all, the vocational college is a pathway to a profession or further studies, but the school also provides custom-made services for businesses looking to develop their employees' skills.

– Sustainable development is one of the key skills in lifelong learning, Turunen notes.

– Through the Greenreality Network, we can make our work on sustainable development more visible to the public and reinforce the region's environmental responsibility and well-being, says Tuosa.

SAIMAA VOCATIONAL COLLEGE SAMPO HAS AROUND 4,000 STUDENTS IN SEVEN FIELDS OF STUDY AND MORE THAN 60 VOCATIONAL QUALIFICATIONS. SAMPO OFFERS VOCATIONAL UPPER SECONDARY, FURTHER VOCATIONAL AND SPECIALIST VOCATIONAL QUALIFICATIONS AS WELL AS PARTIAL QUALIFICATIONS. SAMPO ALSO OFFERS LANGUAGE TRAINING AND QUALIFICATIONS, CERTIFICATES AND LICENCES AND PREPARATORY TRAINING BEFORE A VOCATIONAL UPPER SECONDARY QUALIFICATION. SAMPO HAS CAMPUSES IN IMATRA AND LAPPEENRANTA.

SAMPO
Saimaa Vocational College

>> www.edusampo.fi

Sustainable development is one of the key skills in lifelong learning.


Less CO_2, better productivity.

Better indoor air
and carbon neutral fuels

SOLETAIR POWER OY CONVERTS BUILDINGS INTO CARBON SINKS BY CAPTURING CO^2 THROUGH VENTILATION.

– A single CO_2 capture unit connected to a ventilation unit has the same potential as a carbon sink as three hectares of Finnish coniferous forest with an age of 30 to 50 years, says CEO **Petri Laakso**.

CO_2 captured from an office building into the carbon sink can account for up to 50 percent of a building's CO_2 emissions. Soletair Power's CO_2 capture units have the advantage of excellent energy efficiency.

Improving ventilation in office buildings can significantly increase employees' productivity while speeding up the global transition to fully renewable energy. Captured CO_2 can be mixed with hydrogen to produce fuel, for example.

– For the time being, we are focusing on improving people's cognitive functioning. We don't just sell captured CO_2 or reduce CO_2 emissions but the best indoor air to companies.

Soletair Power offers CO_2 capture units to clients both as a service-as-a-product and as standalone units. The service promises the client a level of reduction in CO_2 which can be provided with certainty. According to Laakso, the price of the service corresponds to that of a cup of coffee, a few euros per employee per day.

– For a typical business operating in an office building, 95% of expenses consist of employees' salaries. By increasing productivity even by just one per cent, the unit pays for itself very quickly.

The Lappeenranta-based company will next focus on expanding production and conquering international markets with the support of technology company Wärtsilä.

SOLETAIR POWER IS A STARTUP COMPANY THAT MANUFACTURES CO_2 CAPTURE EQUIPMENT FOR BUILDING VENTILATION TO INDOOR AIR QUALITY. THE TECHNOLOGY, WHICH IS INTEGRATED IN THE BUILDING, IS THE FIRST OF ITS KIND IN THE WORLD. THE COMPANY USES CAPTURED CO2 TO PRODUCE HYDROCARBONS FOR USE AS SYNTHETIC FUEL.

soletair power

>> www.soletairpower.fi

Bioenergy for heat production, solar electricity for schools

TAIPALSAARI MUNICIPALITY IS OPEN TO RENEWABLE ENERGY.

Using renewable energy is considered important in Taipalsaari. In accordance with the municipal survey on renewable energy, the municipality's aim is to implement solutions that will reduce its greenhouse emissions every year.

The production potential of solar electricity in public buildings has also been investigated. Based on the investigations, a plan to utilise solar electricity has been prepared.

– The first large site where solar electricity will be utilised is Saimaanharju school, says Technical Director **Samuli Kakko**.

At the moment, a new biopower plant is being developed in the Saimaanharju-Konstu area. The plant will use renewable energy sources.

Taipalsaari has large groundwater reservoirs and a protection plan is being prepared for their development, maintenance and monitoring. The protection plan will be completed in the summer of 2017.

In its area, the municipality has six grade I groundwater basins, 17 grade II groundwater basins and several grade III groundwater basins.

– Clean water and effective water management is vital, says Mr Kakko.

The project at Kivisalmi pumping station has made a significant impact on water quality. The pumping station built on the border of Taipalsaari and Lappeenranta has improved the water circulation and clean-up of Pien-Saimaa. A second pumping station is being planned for Kopinsalmi in order to further improve water circulation in western Pien-Saimaa.

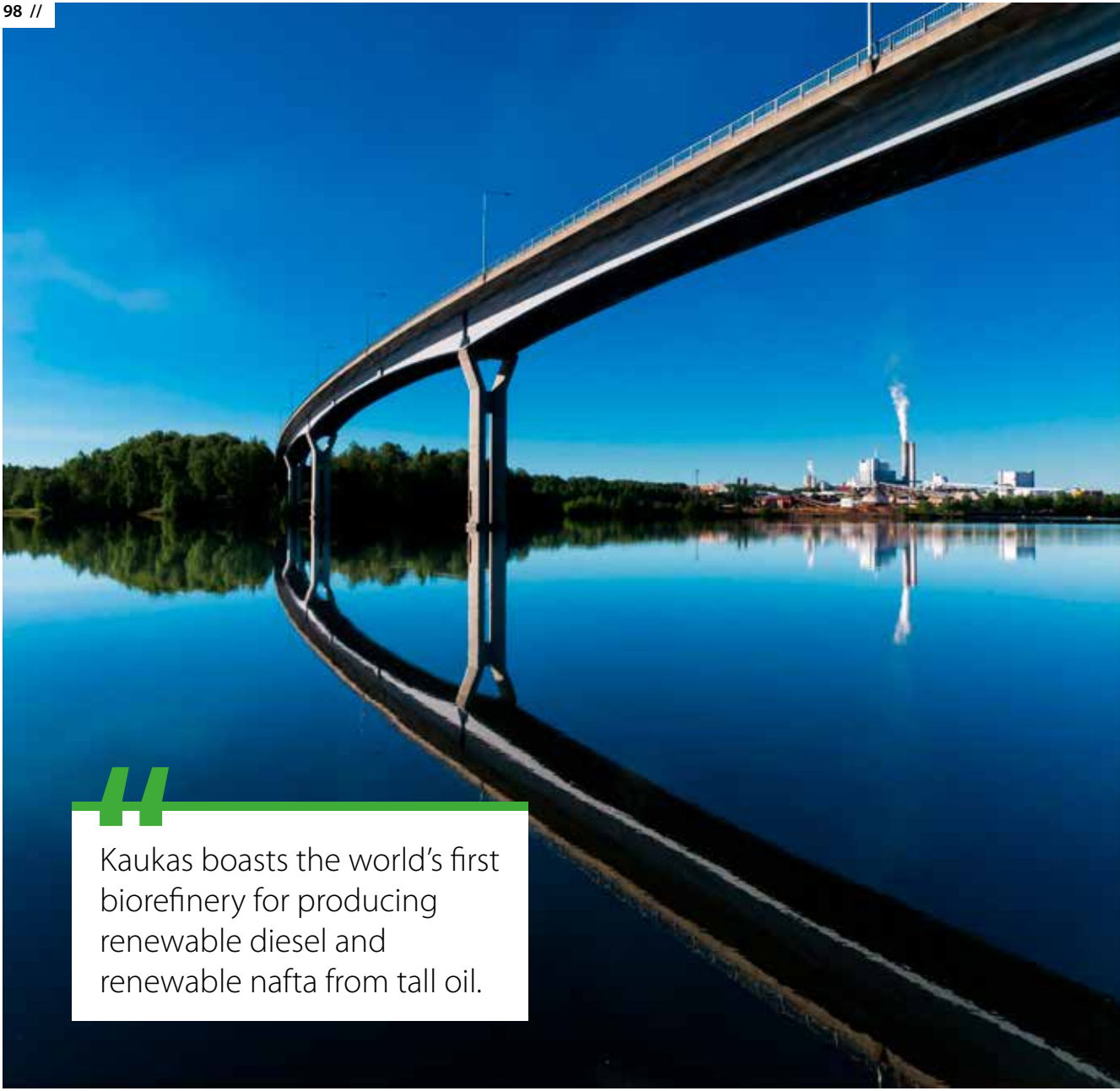
Taipalsaari municipality is aiming to reduce the environmental impact of traffic by developing new traffic solutions with neighbouring municipalities.

TAIPALSAARI IN AN ARCHIPELAGO MUNICIPALITY WITH AROUND 4,800 INHABITANTS, SITUATED NEXT TO LAPPEENRANTA. SAIMAA WATERWAYS MAKE UP ONE HALF OF THE AREA OF THIS MUNICIPALITY. IN THE SUMMER, THE NUMBER OF INHABITANTS IS TRIPLED, THANKS TO SUMMER RESIDENTS.

TAIPALSAARI

>> www.taipalsaari.fi

A new biopower plant is being developed in the Saimaanharju-Konstu area.



Kaukas boasts the world's first biorefinery for producing renewable diesel and renewable nafta from tall oil.

UPM Kaukas takes energy and material efficiency to the max

AT THE KAUKAS INTEGRATED MILL, ONE PLANT'S WASTE IS ANOTHER'S RAW MATERIAL.

The UPM Kaukas mill, the world's most versatile integrated forest industry plant, processes over 5 million cubic metres of wood per year into pulp, paper, sawn timber goods, biofuels, biochemicals and energy.

Since January 2015, the tall oil residue from pulp cooking has been used to produce renewable diesel. UPM's biorefinery represents the cutting edge in material efficiency and is the first of its kind in the world.

The leftover bark from logs processed into sawn timber goods, paper and pulp is incinerated in UPM's bio power plant. The sludge generated by the mill's biological wastewater treatment plant also ends up in the power plant's boiler.

Kaukaan Voima Ltd's bio power plant generates electricity and steam for the entire mill site, as well as heat and electricity for customers of the plant's other shareholder, Lappeenrannan Energia Ltd.

The electricity and steam generated by the recovery boiler are used at the paper mill and by the pulp mill's drying lines.

– Our production has been precisely integrated. The site boasts an overall recycling rate of 90 per cent, and we produce over 90 per cent of our required heat energy from bio fuels, says the mill's General Manager **Vesa Volmari**.

UPM Kaukas uses most of the green energy generated on the mill site for its own needs.

UPM KAUKAS PRODUCES SAWN TIMBER GOODS, PULP, PAPER, ENERGY, BIOCHEMICALS, RENEWABLE DIESEL AND RENEWABLE NAPHTHA IN LAPPEENRANTA. THE SITE'S BIO POWER PLANT GENERATES ELECTRICITY AND STEAM FOR THE MILL, AND HEAT AND ELECTRICITY FOR LAPPEENRANNAN ENERGIA. ABOUT 1,100 PEOPLE WORK AT THE INTEGRATED MILL.

UPMBIOFORE BEYOND FOSSILS

Turning non-recyclable plastic waste into recyclable

EACH PRODUCT PRODUCED USING WIMAO'S TECHNOLOGY SAVES 1–4 TIMES ITS WEIGHT IN CO_2 EMISSIONS.

Wimao Ltd is the technology provider for recycling mixed plastic and other hard to recycle waste streams. With our unique patented technology, it is possible to recycle raw material fractions that are difficult or even impossible to utilize using other technologies. Wimao's technology is ideal for mixed plastic waste streams, textiles and different fiber materials that usually go to incineration or landfill. Our technology also allows mixed materials, content variations and impurities thus simplifying sorting and pretreatment of raw materials.

The first production plant has been operational since 2019 in Lappeenranta. A new bigger Riihimäki plant will start production in 2021.

With Wimao's technology it is possible to convert recycled mixed plastic waste into ecological composite products.

The technology enables versatile design possibilities for end products. The products manufactured unsing our technology are environmentally friendly and reduce both the amount od waste and CO_2 emissions. The products can be used to replace existing products or components made of plastic, wood, metal, glass fiber, stone, or concrete.

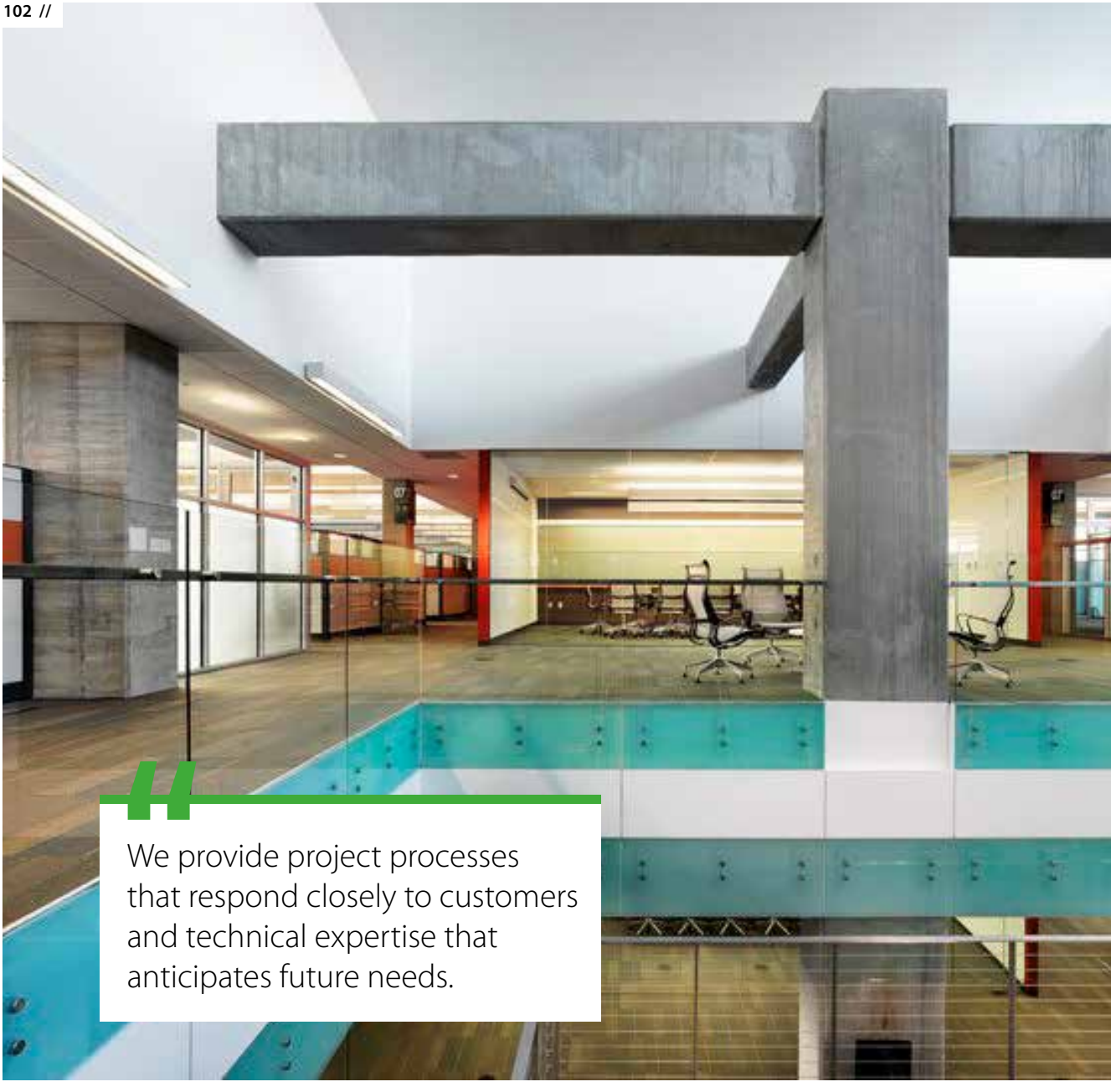
Wimao´s operations include project deliveries and licensing of the recycling technology. Technology delivery includes equipment for the entire process from raw material treatment to the production of final products. Wimao's sustainable technology has a very low water and carbon footprint. Wimao provides fully functional and highly automated production lines for recycling mixed plastic waste. The payback time for the production line can be less than three years.

WIMAO LTD IS THE TECHNOLOGY PROVIDER FOR RECYCLING MIXED PLASTIC AND OTHER HARD TO RECYCLE WASTE STREAMS. WIMAO LTD IS SELLING AND LICENSING THE PATENTED TECHNOLOGY. WIMAO LTD ALSO DESIGNS AND MANUFACTURES COMPOSITE PRODUCTS AT ITS LAPPEENRANTA AND RIIHIMÄKI PLANTS.

WIMAO
RECYCLING TECHNOLOGIES

>> www.wimao.fi

Recycling technologies
and ecological products.



We provide project processes that respond closely to customers and technical expertise that anticipates future needs.

Sustainable construction consists of the right choices

NOWADAYS, A SIGNIFICANT PART OF CONSTRUCTION IS CARRIED OUT ALREADY ON THE DRAWING BOARDS BEFORE THE PROJECT.

The most important choices from the point of view of the building's eco-friendliness are made at this stage. The life cycle of the building can also be influenced through its proper use. Construction is teamwork and coordination between different professions.

– Today's buildings are full of technology and automation that you must know how to use correctly. The operations in facilities are also constantly changing and evolving. So we need project processes that respond closely to customers and technical expertise that anticipates future needs, describes **Mika Sutinen**, Project Manager at WSP Finland Ltd.

WSP Finland Ltd is an expert organisation that operates in almost all areas of society. In Lappeenranta, the focus is on the service chain linked to construction: design, construction contracting, site supervision and use-phase real estate services.

WSP manages and monitors the implementation of customers' construction projects from start to finish using the Healthy House operating model. It starts with setting the goals and ends with the reception of the finished building and ensuring its proper use. The aim is a healthy and safe property for the user.

– We evaluate the solutions implemented step by step so that they work in the environment they were designed for. This allows us to ensure that the construction is done right the first time, the introduction of the building is controlled and that the building works properly even when furnished, says **Jouni Hirvonen**, Head of the Lappeenranta Unit.

According to Hirvonen, a close partnership with the customer is the prerequisite for a successful project. The result is added value produced for the customer. This can be achieved by adopting a people-oriented approach.

– It is extremely important that we are close to the customer and are allowed in on the customer's processes. Only that way can we understand what is required of the building and what the customer really needs. It requires presence and a spiritual partnership – it is our way of operating.

WSP IS AN EXPERT SERVICE COMPANY KNOWN WORLDWIDE THAT EMPLOYS APPROXIMATELY 48,000 PEOPLE. WSP FINLAND LTD IS PART OF THE GLOBAL WSP THAT HAS 550 LOCATIONS AROUND THE WORLD. THE COMPANY HAS 15 OFFICES IN FINLAND.

Electricity from nature

THE SWITCH'S SYSTEMS GENERATE ELECTRICITY FROM WIND ENERGY AND REDUCE COSTS IN SHIPPING AND INDUSTRIAL SOLUTIONS.

The wind, sun and ocean waves are energy sources whose capacity is constantly variating. With the aid of new technology, such variable-capacity energy can be made useful and the production of renewable energy profi table.

YASKAWA EED / The Switch is a pioneer in technology for electrical drive trains and power generation and off ers electric drive solutions for the future.

Its installation base consists of megawatt-scale permanent magnet generator and power converter packages that have been supplied to users all across the globe, and delivered capacity is over 14 gigawatts. The company's main business sectors are wind power, marine, and specialised industrial solutions.

– Our solutions are mostly used in wind farms, but we're making an increasing number of deliveries for marine and industrial applications, says **Matti Nikkinen**, Vice President Operations, YASKAWA EED.

YASKAWA EED's innovative solutions for drive train and power generation systems increase the profi tability and reduce the costs of using electricity. The Japanese Yaskawa group acquired The Switch in 2014 and provides the company with continual opportunities for product development and innovation. Yaskawa Electric Corporation is one of the world's leading suppliers of technology for motion control, robotics and system design.

YASKAWA ENVIRONMENTAL ENERGY / THE SWITCH DESIGNS AND MANUFACTURES PRODUCTS IN LAPPEENRANTA FOR ALL OF THE COMPANY'S MAIN BUSINESS SECTORS. THE COMPANY'S HEAD-QUARTERS ARE LOCATED IN HELSINKI, AND ITS FINNISH PRODUCTION FACILITIES ARE IN LAPPEENRANTA AND VAASA. APPROXIMATELY 98 % OF THE COMPANY'S PRODUCTION IS EXPORTED.

YASKAWA

THE SWITCH
A YASKAWA COMPANY

>> www.theswitch.com

The Switch did not invent permanent magnet technology, but it made it available to the marketplace.


Voittaja 2021 - Lappeenranta
EUROPEAN

Greenreality
NETWORK

DO YOU WANT TO BE PART OF THE NETWORK
OR KNOW MORE ABOUT THE ACTIVITIES?

LAPPEENRANTA

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