

Report on

SUSTAIN- ABILITY 2022



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Rector's Foreword

LUT SHOWED RESPONSIBILITY

and achieved strong academic and economic performance in turbulent times

LUT University continued to find solutions to global challenges and was highly successful in international university rankings in 2022. The year was unprecedented due to the war in Ukraine, the global energy crisis and the slow recovery from the COVID-19 pandemic, which also affected the LUT community.

Sustainable development and responsibility are integrated into LUT's educational content and objectives for research impact. LUT's positive environmental handprint is based on strategic long-term scientific work to preserve natural resources and achieve more efficient energy systems and material cycles, sustainable business, and a cleaner environment, air and water.

In addition to our own actions, we strive for sustainability in operations that we can influence together with our stakeholders. It is in all of our interest to carry out the green transition. In June 2022, LUT published an energy report that paints a comprehensive picture of factors affecting the development of the energy system in Finland. The objective of the report is to help Finland achieve its climate and energy strategy goals, including carbon neutrality by 2035.

LUT joined the UN Global Compact initiative in 2021 and has now reported to the UN Global Compact for the first time. In 2022, we continued to implement our climate action plan and sustainable development programme, and updated our code of conduct, equality and non-discrimination plan and human resource development plan. We will continue to align our operations with the UN's Ten Principles in the areas of human rights, labour, the environment and anti-corruption.

This report summarizes what has been done for the economic, social and environmental responsibility at LUT in 2022.

Join us on the journey towards a more sustainable business world and society. Together we can make a greater impact.

Juha-Matti Saksa
Rector of LUT University



LUT IN FIGURES 2022

1969

was the year LUT was founded

976

scientific publications

7110

Bachelor's, Master's and doctoral students

816

students in continuing education

1090

students in open university instruction

59

doctoral degrees

1237

staff members

107

million euros in funding:
Ministry of Education € 56.3 million,
supplementary funding € 50.7 million

98

nationalities on two campuses

93%

of graduates employed

SUSTAINABILITY AT LUT

Taking sustainability and the environment into consideration guides LUT University's strategic choices, management and operations. Sustainable development and responsibility are integrated into our educational content and our objectives for research impact. In addition, we strive for sustainability in operations that we can influence together with our stakeholders. Through our Trailblazer 2030 strategy and research, we particularly pursue the following Sustainable Development Goals of the United Nations.



The foundations of sustainability at LUT

LUT is committed to environmental, economic and social responsibility in all of its activities: scientific research, academic education, societal interaction and supporting functions.

- » LUT contributes to the sustainable renewal of business and society in its three schools: LUT Business School (LBS), the School of Energy System (LES) and the School of Engineering Science (LENS) that will also incorporate social sciences from 2023 on.
- » Our [Strategy 2030: System Earth](#) seeks solutions for the life-giving resources such as clean energy, water and air.
- » LUT has a sustainability management system and a new sustainability policy, which were

adopted in 2021 to steer all activities. LUT reports on the achievement of its sustainability goals.

- » LUT strives to become carbon-negative by the end of 2024. The university's carbon footprint is calculated according to the Greenhouse Gas Protocol's (GHG Protocol) guidelines, and the ways to reduce emissions are outlined in the university's [Climate Action Plan](#), which is a part of the management system of LUT.
- » LUT reports on its actions in support of the UN Global Compact in accordance with the requirements for non-business participants.
- » LUT Business School reports on its activities in accordance with the UN's Principles for Responsible Management Education ([PRME](#)).

- » [LUT's quality management system](#) is externally audited by the Finnish Education Evaluation Centre (FINEEC), and it ensures systematic and transparent operations through continuous evaluation and improvement our activities.
- » Our [code of conduct](#), updated in April 2022, describes the ethical and lawful courses of action that guide our activity and expectations and the ways we ensure ethical and responsible conduct in decision-making.
- » The student union LTKY ensures that studies are accessible, equal and safe for everyone.
- » LUT adheres to [personal data protection](#) and the [accessibility of its web services](#).
- » Our policy is to treat all members of our higher education community equally. The UN's Universal Declaration of Human Rights serves as the guiding principle for operation on our campuses.
- » LUT's updated [equality and non-discrimination plan](#) was approved on 16 December 2022 to prevent any discrimination and to make the university an equal work community where everyone is treated with respect.
- » The implementation of the equality and non-discrimination plan and the job satisfaction of the staff are monitored by a biennial workplace well-being survey, which LUT conducted for the first time in 2021. The next one will take place in 2023.
- » Employees can give feedback through an open feedback channel. All feedback or ideas are forwarded to the person responsible, who will provide a response.
- » LUT is committed to observing good scientific practice based on [openness and comparability](#).

Economic responsibility

- » Effective financial management enables LUT as an employer to withstand changes in the operating environment.
- » LUT makes responsible investments in, for instance, funds that support renewable energies and solve global challenges.
- » Income from investments enables LUT to pursue operations in line with its strategy.
- » LUT's investments comply with the UN's Principles for Responsible Investment (PRI) and apply conventional profit and risk indicators and environmental, social and governance (ESG) reporting.
- » In 2022, the carbon footprint of the university's investment portfolio decreased by roughly 13 per cent.
- » Up to 71% of LUT's investments have a Sustainalytics ESG rating.
- » At the end of the year 2022, the responsibility risk (20.2) and carbon footprint (117) of LUT's investment portfolio were clearly lower than the reference index.
- » LUT makes donations and grants student scholarships and recognition awards.
- » [Financial statement 31 December 2022](#).

COMMITMENTS BY LUT

[The UN's Global Compact](#)

[SDG Accord](#), universities' collective response to global goals

[Race To Zero](#), universities' initiative for a zero carbon world

UNIFI's theses on sustainable development and responsibility for Finnish universities

LUT Business School: UN's Principles for Responsible Management Education (PRME)

WWF Green Office certificate since 2012

The UN's 2030 Agenda for the 17 Sustainable Development Goals

Social responsibility

- » LUT employees are insured against occupational accidents on campus and in remote work and entitled to preventive occupational health care, acute counseling and medical care, and the treatment and follow-up of long-term illnesses.
- » The mental well-being and job satisfaction of the staff are monitored regularly through employee well-being and mood tracker surveys, and employees' open feedback is processed and responded to. The responses are published once a month on the LUT intranet.
- » LUT offers diverse activities to boost physical, psychological and social well-being at work as well as a bicycle benefit and exercise vouchers for the employees working in the regional units of LUT.
- » LUT enables voluntary blended work, which includes working both remotely and on-campus or at the office, and flexibility for family reasons.
- » Different work arrangements and substitutions ensure that absences due to family leave will not overburden the personnel at work.
- » LUT has received the European Commission's HR Excellence in Research and strives to improve the working environment for researchers with the European Commission initiative HRS4R – Human Resources Strategy for Researchers.
- » The organisational structure of LUT – the board of directors, advisory board and university collegium – are presented transparently.
- » LUT published its new human resource development plan on the university intranet in December 2022. The plan defines how the employer promotes employee well-being and professional development.
- » LUT provides a wide range of training and open university courses for staff. The amount and topics of online training increased significantly in 2022.
- » LUT offered its administration staff a training module promoting workplace well-being and a sense of community.
- » Taking equality into consideration, LUT has increased its courses in Finnish as a second language and English-language training because the number of international employees has increased.
- » Accessibility is taken into account in the design of facilities and digital content. Language services are available for teachers, such as video subtitling.
- » LUT consults its student union in decision-making.
- » The student portal eLUT and staff intranet are bilingual, in Finnish and English.



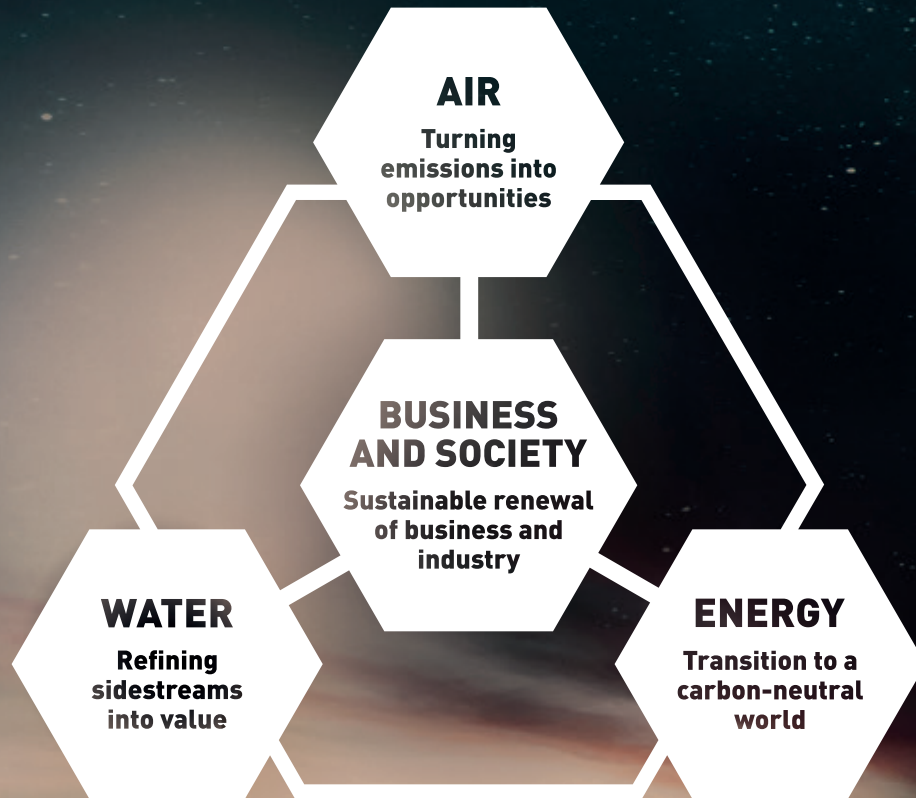
- » LUT's English-language degree programmes, early bird discounts for tuition-fee-paying students, and Finland Scholarships ensure that talented students from also lower-income countries can [study at LUT](#).
- » University chaplains are available to support all students regardless of their religion or denomination. Different hobby groups, leisure associations, affordable sports and well-being and mental health services also support students' well-being.
- » Healthcare services are available for students, and LUT's study counselling psychologist supports and counsels students in study-related issues.
- » In response to the humanitarian crisis caused by the war in Ukraine, LUT made donations and started a project to build stoves to deliver to Ukraine for heating and cooking in harsh conditions. The project inspired individual people, companies and schools to build and send thousands of stoves to help the people in Ukraine.

Environmental responsibility

- » LUT is actively striving to find solutions for combating climate change. The university's carbon footprint is calculated according to the GHG Protocol guidelines, and the ways to reduce emissions are outlined in the university's [Climate Action Plan](#).
- » The Climate Action Plan sets targets for reducing emissions from various sources such as business travel, cars owned by LUT, district heating, waste management, electricity and food service. Some targets have already been met, while most actions are in progress.
- » LUT collaborates with its campus cities, campus property owners and campus restaurants to reduce emissions.
- » A major contributor to LUT's emissions is staff and student commuting. District heating, business travel and food service are also significant sources.
- » The modes of commuting and business travel highly depend on local conditions and services available and are not fully traceable with current systems.
- » Partial remote work and distance learning reduce mobility-related costs and emissions. Even after the COVID-19 pandemic, a significant share of conferences and meetings are held partly with remote tools.
- » The emissions from electricity are zero, thanks to the procurement of carbon neutral electricity and the university's own production of solar power on the Lappeenranta campus.
- » Environmental aspects are considered in LUT's procurement. According to a guideline updated in 2022, issues to be considered can include, for example, the environmental friendliness of materials, the use of old equipment for spare parts, energy and water consumption, life cycle, maintenance service and environmental measures conducted by the service provider.
- » LUT's administrative services have been nearly paperless since 2020, thanks to new, digitalised HR and financial administration processes and the ongoing digitalisation of filing.
- » Kampusravintolat Oy, the campus restaurant in Lappeenranta, has launched vegetarian catering options and a menu based on local seasonal raw materials. Vegetarian food is available in the buffet daily.
- » Sorting and reducing biowaste is actively promoted by the restaurant. Food is cooked in batches according to the demand. The restaurant sells out leftover food at reduced prices to students and staff to take home.
- » There are scales to monitor biowaste volumes, and people returning dishes get immediate feedback. The limit to get positive feedback was 25 grams of biowaste, and it was tightened to 20 grams from the beginning of 2023 on. Kitchen food loss is also monitored actively.

TRAILBLAZERS

Science with a Purpose



SYSTEM EARTH

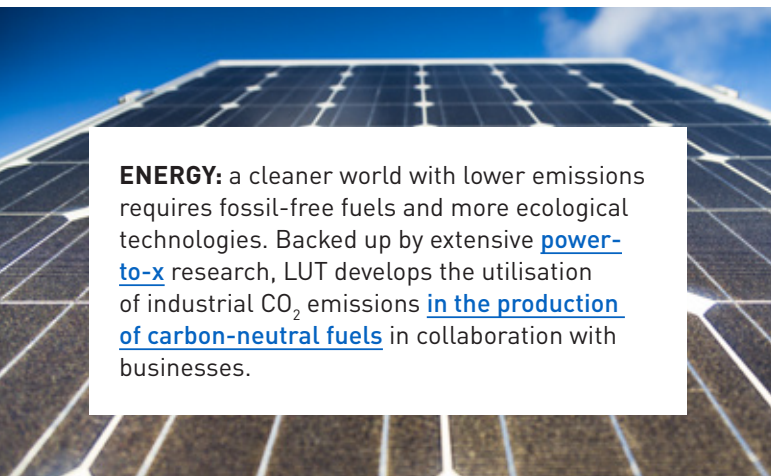
We help society and businesses in their sustainable renewal. In 2022, we were assigned the responsibility to provide degree programmes also in social and behavioural sciences and communication sciences, in addition to technology and business. The first new degree programmes will start in autumn 2023.

Sustainability in **SCIENTIFIC RESEARCH**

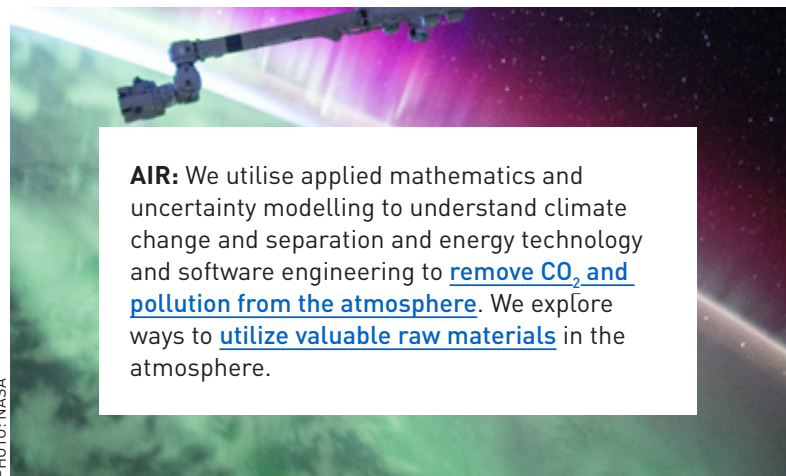
LUT University conducts and publishes high-level research that improves the state of the environment and is relevant to society and industries. Clean energy, water and air are life-giving resources for which we seek solutions with our expertise in technology and business.

- » In 2022, LUT released 481 scientific publications in high-quality journals (Publication Forum rating 2–3), which meant about a 7-% increase from the previous year.
- » A total of 419 LUT’s Scopus publications in 2022 dealt with at least one sustainable development goal. A year earlier, the number was 344.
- » LUT aims to make parallel publishing its norm. All scientific publications will be either originally published in an open forum or made available through LUTPub. The transparency also helps to spread sustainable applications to the public.
- » Our research projects span from Europe to Asia, Africa and the Americas, and we strongly promote international cooperation both in research and education.

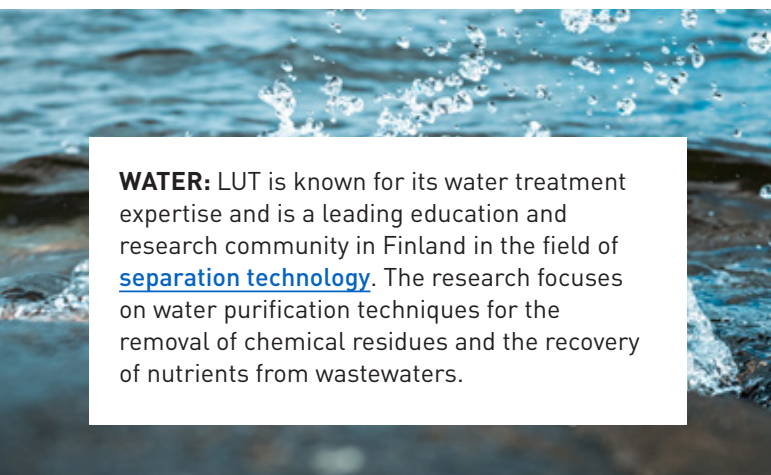
Examples of our scientific solutions



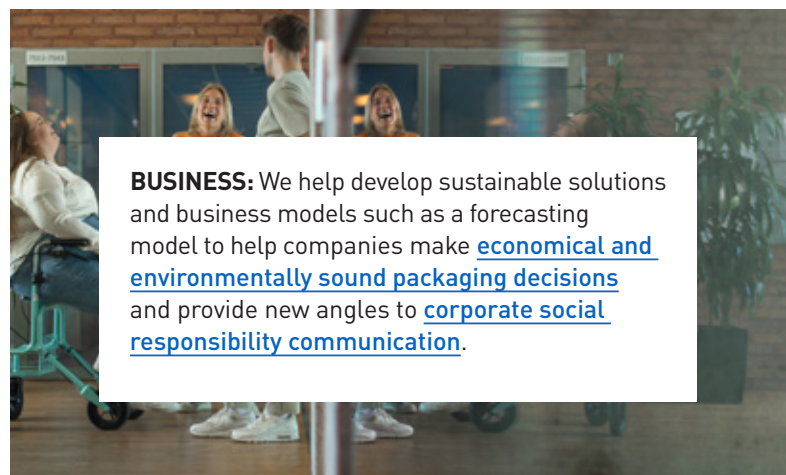
ENERGY: a cleaner world with lower emissions requires fossil-free fuels and more ecological technologies. Backed up by extensive [power-to-x](#) research, LUT develops the utilisation of industrial CO₂ emissions [in the production of carbon-neutral fuels](#) in collaboration with businesses.



AIR: We utilise applied mathematics and uncertainty modelling to understand climate change and separation and energy technology and software engineering to [remove CO₂ and pollution from the atmosphere](#). We explore ways to [utilize valuable raw materials](#) in the atmosphere.



WATER: LUT is known for its water treatment expertise and is a leading education and research community in Finland in the field of [separation technology](#). The research focuses on water purification techniques for the removal of chemical residues and the recovery of nutrients from wastewaters.



BUSINESS: We help develop sustainable solutions and business models such as a forecasting model to help companies make [economical and environmentally sound packaging decisions](#) and provide new angles to [corporate social responsibility communication](#).

LUT runs interdisciplinary research platforms

GREENRENEW – [Green Hydrogen and CO₂ for Industry Renewal](#). The platform creates cost-competitive solutions for key processes needed in the renewal of industry. The solutions are enabled by green hydrogen and turning CO₂ from a problem to a resource.



AMBI – [Analytics-Based Management for Business and Manufacturing Industry](#) focuses on smart technologies in the manufacturing industry, digital transformation and business analytics. AMBI aims to improve companies' competitiveness and create sustainable value in the digital economy.



INERCOM – [Integrated Energy Conversion Machinery](#) supports the transition to a carbon-neutral world by creating record-breaking efficient solutions for energy conversion machinery.



MORE SIM – [Modelling Reality through Simulation](#). The platform provides digital tools that will contribute to achieving sustainable industrial growth.

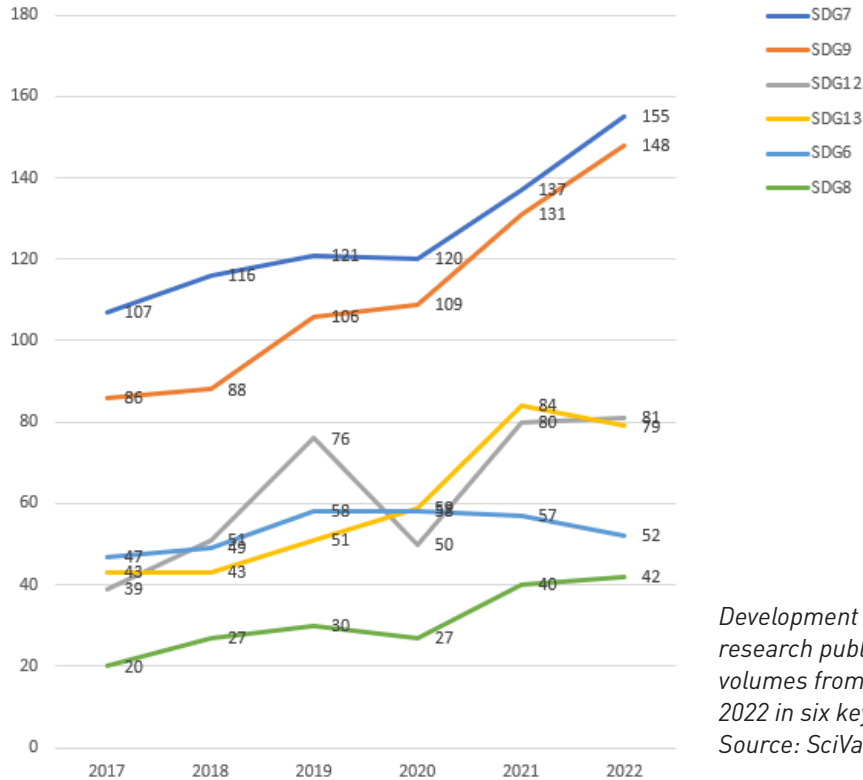


SCI-MAT – [Sustainable Circularity of Inorganic Materials](#). The platform examines the circular economy models of metals and industrial minerals by utilising municipal and electronic waste and side flows from mining and other industry as raw materials.

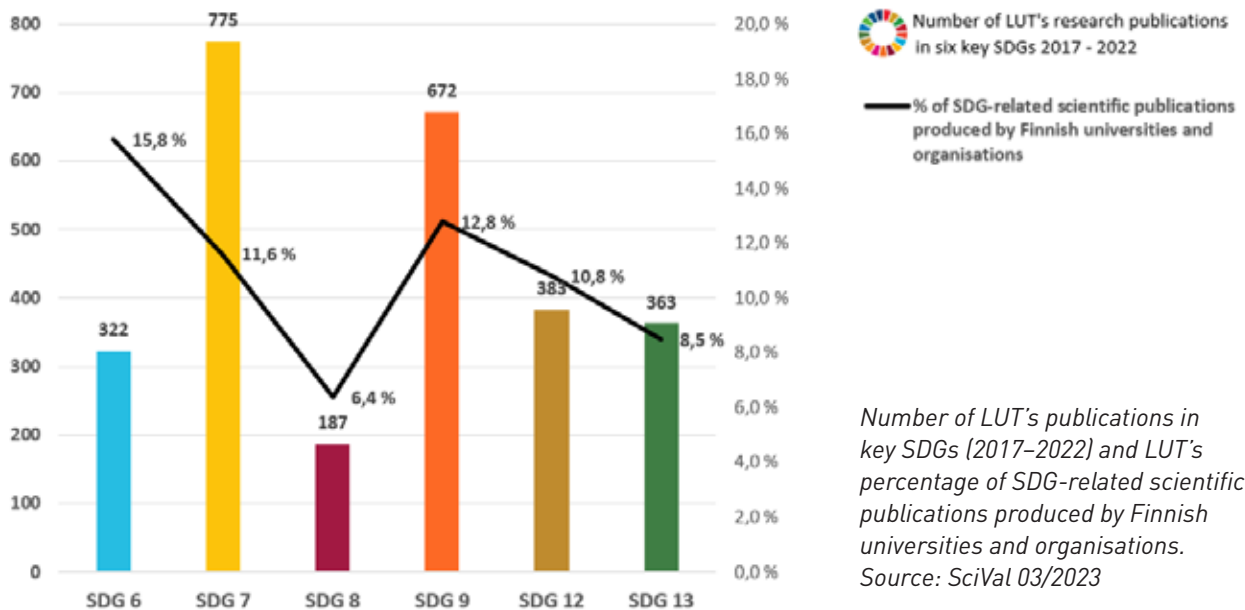


Research in figures

We aim to increase the number of scientific publications related to our strategic SDGs 6, 7, 8, 9, 12 and 13. The development of this metric is monitored by classification in Scopus SciVal.



Development of LUT's research publication volumes from 2017 to 2022 in six key SDGs. Source: SciVal 03/2023

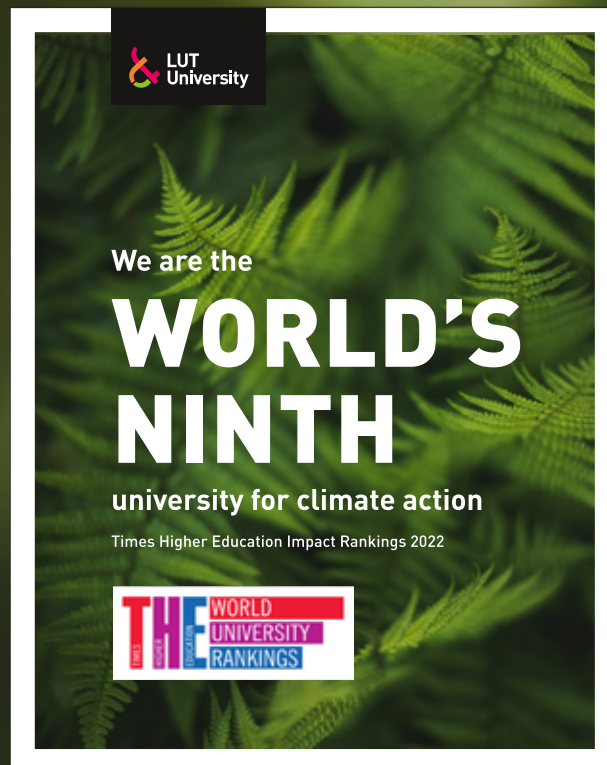


Number of LUT's publications in key SDGs (2017-2022) and LUT's percentage of SDG-related scientific publications produced by Finnish universities and organisations. Source: SciVal 03/2023

N.B. The number of publications cannot be compared to the figures published in the previous Sustainability Report, as the number of SDG publications in SciVal has increased with new search terms.

Placed high in the THE 2022 Impact Rankings

- » LUT reached the top 101–200 out of 1 406 universities in the THE 2022 Impact Ranking, which assesses the social and economic impact of universities against the UN’s Sustainable Development Goals (SDGs). LUT’s ranking improved significantly from the previous year.
- » In terms of climate action (SDG 13) LUT was listed ninth – one place higher than the year before.
- » LUT rose to the top 100 in terms of three SDGs. The ranking indicates that LUT has promoted partnerships for the goals (SDG 17) especially well, placing 44th.
- » Overall, LUT ranked among the world’s top 350 universities out of the total 1 799 in the autumn 2022 THE World University Rankings. LUT’s special strengths are its research, citations to its scientific publications, and industry collaboration and the funding it yields. In the previous year, LUT was among the top 300.
- » LUT Business School climbed to the world’s top 150 in the [Times Higher Education \(THE\) 2023 ranking](#) of 870 business and economics schools





Energy report helps Finland towards carbon neutrality

In June 2022, LUT University published an energy report that paints a comprehensive picture of factors affecting the development of the energy system in Finland. The objective of the report is to help Finland achieve its climate and energy strategy goals, including carbon neutrality by 2035.

The report offers reliable information on different energy production methods, the current state of the energy system and future development trends.

Wind, solar and nuclear power and biomass play a key role

The report states that the most important forms of energy in Finland are [wind power](#), [solar photovoltaic electricity](#), [nuclear power](#), and [biomass](#). In addition, the report discusses topics such as the emerging [hydrogen economy](#), carbon dioxide recovery and utilisation, energy storage, and energy efficiency.

The most important objectives in the development of the energy system are cost efficiency, supply security and zero emissions. These aspects have an essential effect on national competitiveness and well-being. Therefore, the energy strategy and energy system should be developed in future Government Programmes.

Science-based facts to spark discussion

Making an impact on society is one of the three missions of a university in addition to education and research. The aim of the report is not to steer decision-making in a particular direction but to relate science-based facts about different solutions.

Besides the academic research and the development of carbon-neutral energy solutions in close cooperation with companies, LUT plans to continue driving the energy discussion and welcomes especially the science community's comments on the topic.

[Download the report](#) in Finnish or English.



The report is targeted for anyone interested in the development trends of the energy system. Energy policy dialogue tends to focus on individual technologies and can't see the forest for the trees. Our report describes a variety of solutions as part of a wider systemic entity.

Olli Pyrhönen
Dean of LUT University's School of Energy Systems

Sustainability in

ACADEMIC EDUCATION

The technology and business education provided by LUT University focuses particularly on clean energy, water and air. LUT graduates can promote responsibility in their professional field. By educating environmentally conscious experts and decision-makers, LUT contributes to global, national and regional development and help society and businesses in their sustainable renewal.

All the degree programmes at LUT University in 2022 were built to increase the graduates' competences in sustainability. In 2021, the share of degree programmes with sustainability-related intended learning outcomes was 80%.

- » At the beginning of studies, all new LUT students undergo an orientation into environmentally responsible thinking and research.
- » The course Introduction to Corporate Social Responsibility and Sustainability is compulsory for all students at the LUT Business School (LBS).
- » Sustainable development is a multidisciplinary theme in the LBS programme portfolio, from bachelor's to doctoral degrees.
- » LUT launched three new international degree programmes in 2022: Industrial Engineering and Management, Electric Transportation Systems, and Innovation and Logistics.
- » Based on the national bachelor's graduate survey of 2022, the sustainability skills of graduates from LUT bachelor's programmes develop more strongly than those of graduates from other universities in Finland (LUT mean 3.7, national average 3.1, survey excluding the University of Helsinki and Åbo Akademi University).
- » Based on the latest master's graduate surveys, the sustainability skills of LUT MSc graduates of programmes in both business administration and

technology develop more strongly than the average in reference universities nationally (source: TEK Graduate Survey 2022, SE Graduate Survey 2022).

Examples of degree programmes promoting sustainability:

- » Software Engineers for the Green Deal
- » Bioenergy Systems
- » Sustainable Manufacturing in Mechanical Engineering
- » Circular Economy
- » Sustainability Science and Solutions
- » Environmental Technology
- » In addition, sustainable business is a cross-cutting theme in all degree programmes at LBS

Examples of [open studies](#) promoting sustainability:

- » Transport, Sustainable design and production or Power-to-X.
- » At the beginning of 2023, LUT expanded its offering of open courses to include Mitigating climate change through materials and manufacturing technologies, an extensive programme focusing on the hydrogen economy.
- » LUT courses are available through the [FiTech](#) network university. The courses are open to the public and free of charge, such as Electricity market (SDG 7) ja Digital water (SDG 6).
- » LUT is a part of [the Climate University](#) which offers open courses from 18 universities.



SOCIETAL INTERACTION

and stakeholder collaboration

LUT is widely involved in societal interaction within international, national and local educational institutions and sustainability focused networks, governmental bodies, enterprises and other actors. LUT is committed to promoting sustainable development in collaboration with its external stakeholders and requires sustainable operations from its partners.

- » LUT's business ecosystem consists of research and education units, students, alumni and enterprise networks, the business accelerator Green Campus Open (GCO), the J. Hyneman Center (JHC) for rapid prototyping, the student-driven entrepreneurship society [LUTES](#), and the cleantech seed investor Green Campus Innovations Ltd. (GCI).
- » LUT's [IPR portfolio](#) provides new opportunities for start-ups as well as established industrial companies.
- » By 2022, LUT research has generated fifty start-ups that have been operational for at least three years. Twelve new inventions were reported in 2022.
- » LUT cooperates closely with its campus cities, Lappeenranta and Lahti, to promote a clean environment and a sustainable society. The focus of the cooperation is on education, district heating, waste, electricity and commuting.
- » As part of the Carbon Neutral Startups ([CARNES](#)) project, LUT introduced a free tool [LUT 4SUS](#) for the sustainability assessment of business idea development and start-up teams.
- » [LUT Junior University](#) incorporates LUT's sustainability contents into the curricula of local schools, from primary school to upper secondary level. The Junior University particularly promotes SDG 4, SDG 12, SDG 13 and SDG 17. In Lahti, the equivalent science education concept is called [JunnuYliopisto](#).
- » In autumn 2022, LUT and the upper secondary schools in the city of Lappeenranta jointly launched a new, science-focused curriculum. It includes business and natural sciences courses planned and implemented in co-operation with LUT.
- » As a part of the UNIFI network of Finnish universities, LUT shares and develops sustainable and responsible practices openly, actively and collaboratively. LUT is also a member of the sustainable development and responsibility working group of Finn-ARMA, which brings together research administration and management experts from higher education institutions and research institutes in Finland.

Examples of impact

- » LUT experts are often consulted by parliamentary committees and various regional, national and international institutions, especially regarding renewable energy and carbon neutrality.
- » LUT is represented in the Euro-Case Executive Committee of European science academies and participates in the Science Advice Mechanism of the European Commission.
- » LUT is a member of Women in Tech Finland, a network that promotes diversity, equality and inclusion in the field of technology.
- » LUT is an expert member of several international research, business and sustainability [networks](#).

I'M WITH
SCIENCE.

#landofthecurious

Support to Ukraine

LUT joined Finland and the European Union in supporting Ukraine and condemning the military aggression launched by Russia in February 2022. LUT's actions to support Ukraine:

- › study opportunities for people fleeing the war in Ukraine and a 100% tuition fee waiver on humanitarian grounds
- › support for members of the LUT community support in processing the crisis
- › suspension of collaboration with Russian and Belarusian organisations and refraining from any new projects or exchange programmes with them
- › donation of 20 000 euros to Unicef Finland and the Finnish Red Cross to help people suffering from the war
- › no tolerance for hate speech or harassment in the LUT community

LUT's stove project inspired action

In November 2022, LUT University's mechanical engineering experts came up with the idea to build stoves to send to Ukraine for heating and cooking in poor conditions without electricity.

International companies such as SSAB and The Switch, the local company Puuttikanava and many others joined the effort by providing materials and parts – and it didn't end there.

Due to the multitude of inquiries, LUT decided to release the dimensional drawings of the stove online at lut.fi/kamiina in November 2022. The social media buzz around the project even included a Twitter challenge calling on everyone with welding skills to make at least one stove.



When we published the drawings online, the project really got out of hand, in a good way. With the collaboration of new partners, we at LUT were able to build as many as 105 stoves. Masses of people and companies also wanted to make stoves to help the Ukrainians, so the total number of stoves is already in the thousands.

Juha Varis
Professor, head of LUT University's Department of Mechanical Engineering

Sustainability

EVENTS AND ACTIONS

LUT is known for a relaxed, safe and responsible campus culture, where everyone is encouraged to join the community and climate action while growing sustainability competence by education and research. We emphasise our community's ability to promote sustainable development.

- » LUT continues to implement its [Climate Action Plan](#), which has been prepared with staff and students.
- » LUT has contributed to the European Sustainable Energy Week (EUSEW) policy dialogue with research-based solutions since 2016. In September 2022, LUT hosted an Energy Day event in Brussels to present its activities for scientific advice, industry insights and research and innovation to support the European energy transition.
- » Representatives of 30 German universities visited Lappeenranta in October 2022 to learn how LUT leads sustainable change and turns its sustainability ambition into action. The goal of the visit was to transfer knowledge and share best sustainability practices.
- » LUT and the City of Lappeenranta hosted the international Future Energy Solutions conference in November 2022 with top speakers from the European Union, Finnish Government, companies and research communities. The main theme was Towards an Energy Independent Europe, including topics around the hydrogen economy and synthetic fuels, the storing of electricity and heat, and small modular reactors for heating.
- » LUT cooperated with UN Global Compact Finland on the Project Course on Sustainable Business for students and the webinar Biodiversity and the Private Sector in May 2022.
- » LUT returned to contact teaching after the COVID-19 pandemic in autumn 2022, and international mobility increased. The transition to the so-called new normal has taken longer than expected. Some employees have experienced blended working as positive, some as stressful. Partial remote work and distance studies reduce mobility-related emissions.
- » The rectors of LUT and 12 other Finnish universities took a post-pandemic stance on student well-being. They emphasised collaboration between student unions, student associations, the Finnish Student Health Service, student housing foundations, municipalities, representatives of the working world, and other actors.
- » When Russia invaded Ukraine on 24 February 2022, LUT immediately summoned its exchange students to return from the war-waging countries for their own safety.
- » LUT University, Aalto University and the University of Oulu organised the event Shaking Up Tech in October 2022 to inspire young women and nonbinary people to apply to technology studies.
- » The spring and autumn well-being weeks engaged students and staff in physical activity on the Lappeenranta and Lahti campuses. The events included, for example, a hobby and well-being fair and a sports night by the Parrury student sports club.



We aim to produce information on the impacts of different products on biodiversity to enable decision-makers, businesses and consumers to take those impacts better into consideration when making decisions.

Ville Uusitalo,
Associate Professor, sustainability science

- » LUT took part in the Imatranajo road race to introduce the electric motorcycle Ukkonen developed by the university's prototype lab JHC.
- » In the event Tieteen taikaa in Mikkeli in September, LUT opened the doors to its separation technology laboratory to let visitors study microplastics that end up in water bodies.
- » The biotechnology startup eniferBio won the annual Metsä360 prize, awarded by LUT and the Marjatta and Eino Kollari Foundation, for its mycoprotein production process that utilises industrial side streams.
- » The animal rights organisation Animalia gave its 2022 Pro Animalia award to the student unions of LUT University and the universities of Helsinki, Lapland and Oulu.
- » The Earth's carrying capacity requires the sustainable renewal of food production: a new food system. LUT board member Pia Erkinheimo and Helena Kahiluoto, professor of sustainability science and principal research scientist, have taken public stances in favour of organic farming and foods of plant origin and against food waste and the overconsumption of protein.
- » The student unions of LUT University and the LAB University of Applied Sciences jointly organised the Sustainability Days on the Lappeenranta and Lahti campuses on 15–17 November 2022. The focus was on sustainable consumption, recycling, saving food and how to reduce one's own carbon footprint. There were also two Climate Puzzle workshops on the Lappeenranta campus in April.
- » The LUT student union joined Greenreality, a regional network of citizens, municipalities, communities and companies working for a sustainable future. LUT is also a member.
- » LUT held an employee volunteer day in August 2022 in cooperation with the Mannerheim League for Child Welfare.
- » Instead of sending out conventional holiday cards, LUT made a donation of 10 000 euros to charity for those suffering from the war in Ukraine, youth mental health work and the protection of the Baltic Sea marine environment.



I've been able to work on themes that are meaningful to me and our community: the climate, equality, and preventing loneliness."

Roosa Grönberg
Chair, LUT student union



CARBON FOOTPRINT

and other environmental measures

LUT's carbon footprint for the year 2022 totalled 2 288 tons of carbon dioxide equivalent (CO₂eq).

» The carbon footprint was calculated with the GHG Protocol, which classifies emissions into three scopes.

- **Scope 1** includes direct emissions that occur from sources owned or controlled by the organisation. At LUT, this means a fleet of five corporate cars, which accounts for merely 0.4% of the carbon footprint.
- **Scope 2** includes purchased electricity, which at LUT is renewable and carbon neutral as such.
- **Scope 3** includes indirect emissions related to the university's activities. A major contributor to the emissions is staff and student commuting. District heating, business travel and food service are other major sources.

» District heating accounted for 18% of the carbon footprint. District heating is included in LUT's property rent, so the emissions were placed under scope 3 considering the control approach according to the GHG Protocol Standard.

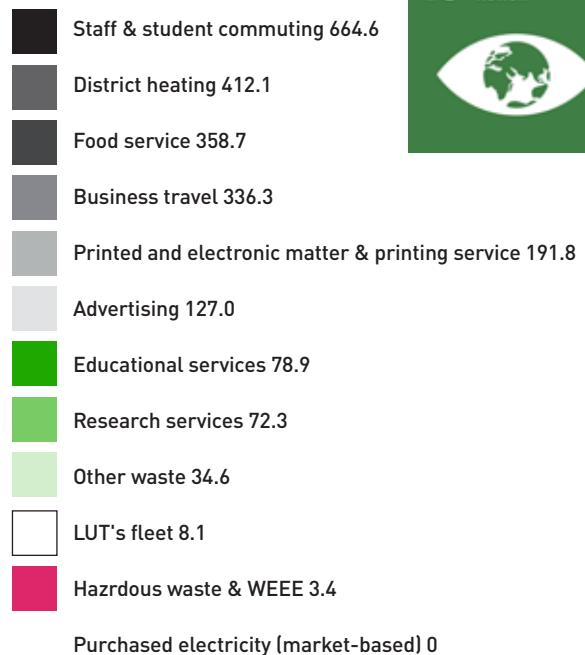
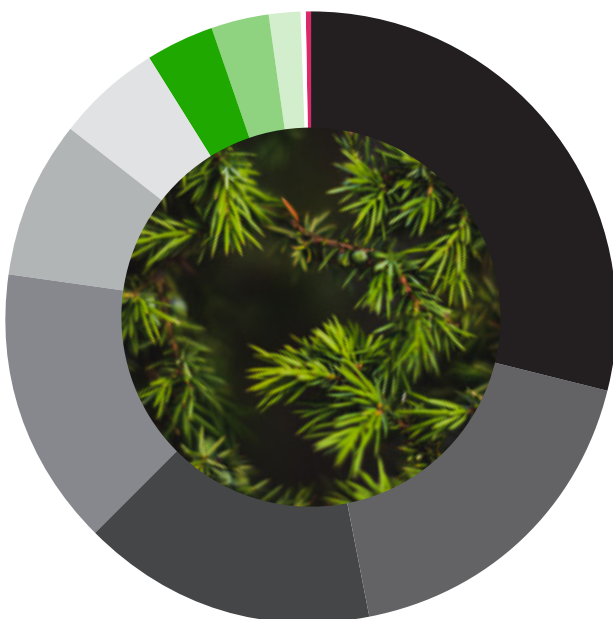
» LUT's buffet food service accounted for 16% of the carbon footprint. The emissions increased as staff and students started to return to the campus after the COVID-19 pandemic.

» The share of business travel accounted for 15% of the carbon footprint. The emissions have increased as business travel is returning to its pre-pandemic level. It is important to note that only air and rail travel booked via the university's travel management company was considered.

» The emissions from travelling between university and home were estimated based on a commuting survey conducted among employees and students at the end of 2020.

» The university is continuously improving its carbon footprint calculation process, including data quality and data collection procedures.

LUT's carbon footprint: 2 288 t of CO₂eq



SUSTAINABLE DEVELOPMENT PROGRAMME STATUS

[LUT's sustainable development programme](#) includes concrete targets for work that is done in accordance with the sustainability policy approved by the university rector. Status 2022:

SCIENTIFIC RESEARCH

The number of scientific publications related to LUT's strategic SDGs (6, 7, 8, 9, 12, 13) will increase. – **Achieved in 2022**

SUSTAINABLE CAMPUSES

LUT aims to be carbon-negative in 2024 in accordance with its Climate Action Plan. – **Ongoing**

ACADEMIC EDUCATION

All of LUT's degree programmes will develop students' expertise in sustainable development. – **Achieved in 2022**

LUT will classify its courses based on the SDGs they deal with. – **Planned**

LUT's bachelor's and master's graduates will estimate that their sustainability competencies have developed more strongly than other university graduates in Finland on average. – **Achieved in 2022**

SOCIETAL INTERACTION

LUT will strengthen its impact and promote sustainable development in collaboration with its external stakeholders following its LUT Trailblazer 2030 strategic action plans and Climate Action Plan. – **Ongoing**

The LUT Junior University will establish and develop wide-ranging science and technology education that strengthens the sustainable development competencies of children and youth regionally. – **Achieved in 2022**

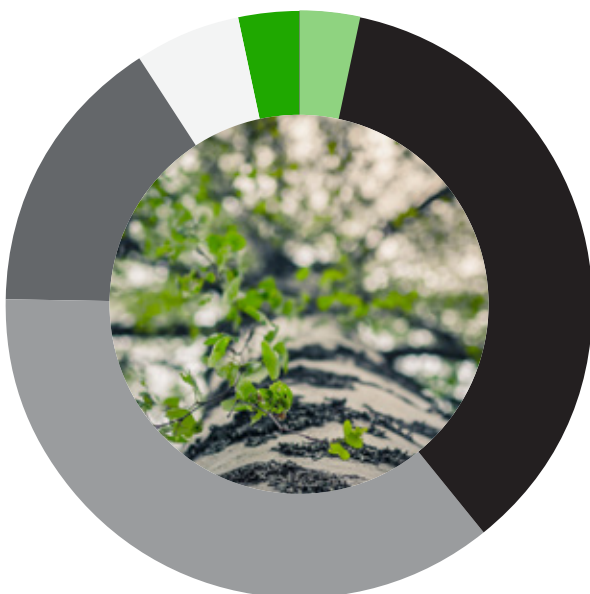
OTHER ENVIRONMENTAL MEASURES

The waste streams and consumption of water, heat and electricity at LUT are monitored and reported annually. More information below and on the following pages.

Proportion of waste recycled [t]:

» In 2022, 54 500 tons of waste was recovered for recycling, and waste-to-energy totalled 51 380 tons.

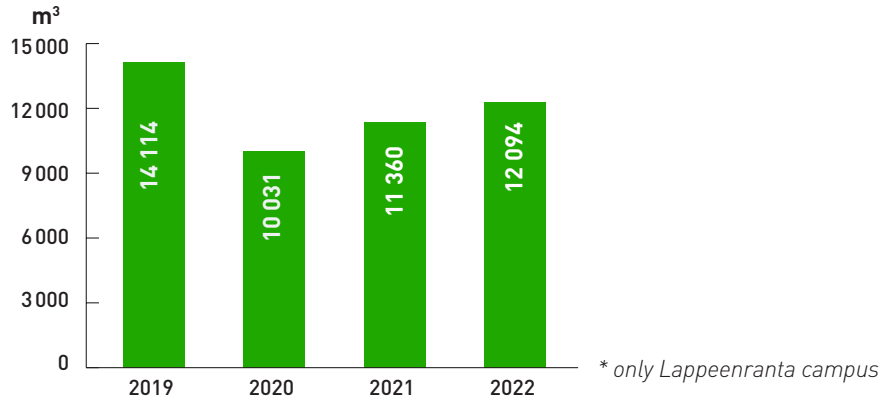
» 0% of the total of 107 tons of waste was landfilled.



SDG 6



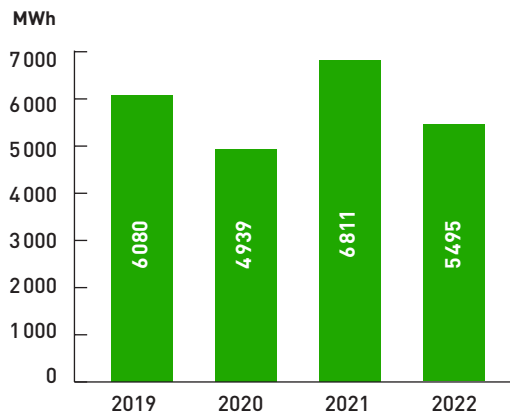
Volume of water used at the university [m³]:



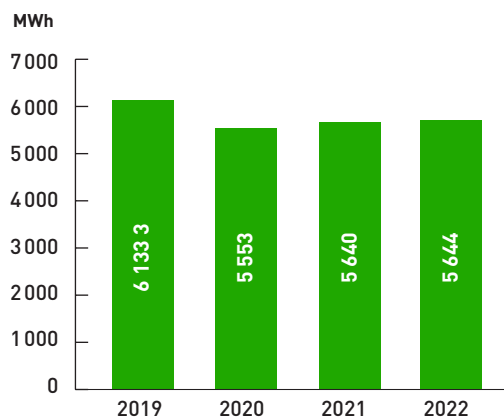
SDG 7



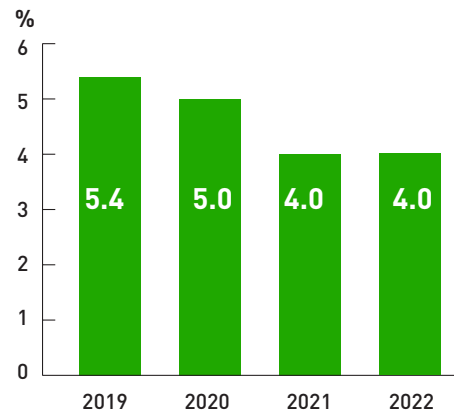
Heat consumption [MWh]



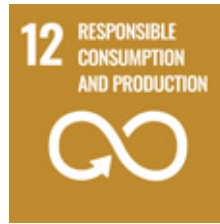
Electricity consumption, total [MWh]



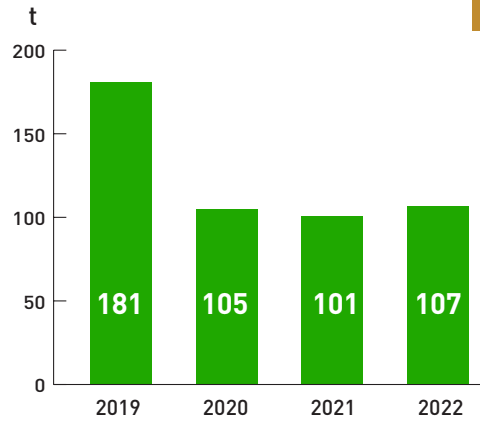
Percentage of LUT's electricity consumption covered by campus solar panels



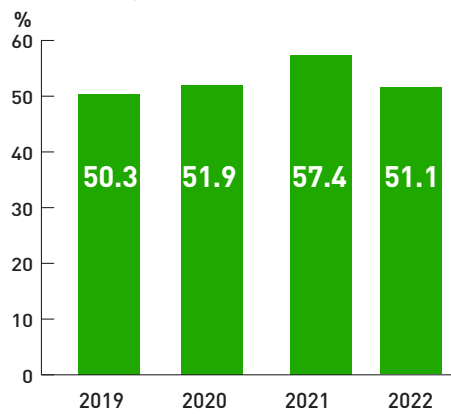
SDG 12



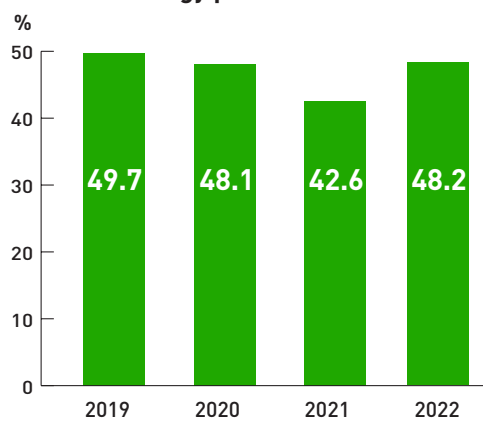
Amount of waste generated [t]



Proportion of waste recycled [%]:



Proportion of waste to energy production [%]:



LUT AND THE 2030 AGENDA

The education and work at LUT promotes all the 17 Sustainable Development Goals on the UN's 2030 Agenda.

SDG 1 | NO POVERTY

- » The employment rate of LUT graduates is over 93%.
- » 73% of LUT's employees (900 persons) are on contracts of at least 24 months.
- » LUT made donations and initiated a stove project to help Ukrainians during the war.



SDG 2 | ZERO HUNGER

- » LUT's research indicates that [a global, circular, nutrient-sharing economy](#) would prevent biodiversity loss and hunger.
- » Many LUT events have dealt with saving food. The biowaste volumes on the campus kept declining also in 2022.
- » Campus restaurants actively promote sorting and reducing biowaste. Scales monitor biowaste volumes and give immediate feedback to people returning dishes. The restaurant sells leftover food to take home at reduced prices.



SDG 3 | GOOD HEALTH AND WELL-BEING

- » An LUT research group is developing healthier foods that lower cholesterol and stabilise blood sugar levels. The group's approach involves breaking down beta-glucan molecules and using mushrooms and cereals as raw material.
- » The spring and autumn well-being weeks on the Lappeenranta and Lahti campuses included a hobby and well-being fair and sports activities for the students and staff.
- » In 2022, 83 LUT staff members took part in first aid training and 17 took part in mental health first aid training.
- » LUT opened a helpline and provided additional mental support for students and staff affected by the war in Ukraine.
- » In addition to Ukraine, LUT donated to youth mental health work.



SDG 4 | QUALITY EDUCATION

- » LUT ranked high in the THE 2022 Impact Rankings: ninth in terms of climate action (SDG 13) and in the top 101–200 out of all the 1 406 universities ranked.
- » LUT's open university education offers access to studies regardless of background, gender or income.
- » LUT Junior University teaches all age groups from early childhood education to upper secondary school to make a positive environmental impact. Students are introduced to science on an equal footing because LUT Junior University incorporates science into the basic education curriculum.



SDG 5 | GENDER EQUALITY

- » The equality and non-discrimination plan of LUT was updated in 2022, aiming to prevent any discrimination.
- » Women constitute 47% of LUT's employees (in 2021 and 2022).
- » Gender equality in management and leadership positions has progressed at LUT: in 2022, women made up 61% of the management group and 44% of the board of LUT.
- » The campus event Shaking up Tech aimed to inspire women and non-binary people to study technology.



SDG 6 | CLEAN WATER AND SANITATION

- » [To make clean water more accessible, refine wastewater sidestreams, and mitigate climate change](#), LUT explores the use of micro-organisms and natural light to remove pollutants and contaminants such as pharmaceutical residues from water.
- » Watch a video about [LUT's water treatment and separation science expertise](#).



SDG 7 | AFFORDABLE AND CLEAN ENERGY

- » In August 2022, LUT and 14 other universities jointly stated that [all energy could be generated from renewable sources](#), such as solar and wind power, before 2050. The statement received extensive media coverage.
- » An extensive [energy report](#) by LUT dealt with different ways to achieve carbon neutrality in the Finnish energy system.
- » An LUT study showed that a solar photovoltaic system pays for itself quickly, and producing solar electricity for one's household and selling the surplus to the main grid was profitable even before the autumn 2022 global energy crisis.
- » Power-to-x research at LUT will continue in a new laboratory to be built on the Lappeenranta campus.
- » LUT also studies [the possibilities of small modular reactors](#) to produce fossil-free electricity and district heating.
- » Based on a power-to-x report by LUT, the Finnish energy company St1 is planning to build a methanol plant in Lappeenranta. The plant would utilise the carbon dioxide emissions of a cement factory for energy production. LUT has also explored possibilities to produce hydrogen and methanol in the city of Kitee.
- » A major research focus at LUT now lies on [hydrogen economy and clean electricity](#) to replace fossil energy sources. See also the [Hydrogen Valley study](#) in 2022.

7 AFFORDABLE AND CLEAN ENERGY



SDG 8 | DECENT WORK AND ECONOMIC GROWTH

- » LUT monitors job satisfaction and the implementation of its equality and non-discrimination plan with a biennial workplace well-being survey. The next one will be conducted in 2023.
- » LUT annually organises the DuuniDay recruitment event to connect students and employers.
- » Up to 71% of LUT's investments have a Sustainalytics ESG rating. The responsibility risk (20.2) and carbon footprint (117) of LUT's investment portfolio were clearly lower than the reference index.

8 DECENT WORK AND ECONOMIC GROWTH



SDG 9 | INDUSTRY, INNOVATION AND INFRASTRUCTURE

- » LUT is involved in corporate collaboration projects in the metal industry, such as Fossil Free Steel Applications (FOSSA).
- » The three-year project Towards Carbon-Neutral Metals (TOCANEM), which started in 2021, reduces carbon dioxide emissions from metal production. In addition to the metal industry, the project includes representatives from the energy, wood, and paper industries. The collaborative project aims to replace carbon with green hydrogen, to power processes with electricity, and to utilise biocarbon from forest industry sidestreams.
- » [LUT's and Andritz's new fibre technology laboratory on the Lahti campus](#) expands LUT's range of research on fibres and fibre products based on biomass and renewable raw materials.
- » LUT's [corrosion testing laboratory helps ABB develop technical solutions](#) to improve the corrosion resistance of frequency converters, extend their lifespan and reduce costs.
- » LUT has also studied how heat pumps could be used for the production of industrial process steam and district heating.
- » LUT is part of the Power Coast battery industry cluster and studies [the recycling of metals to meet the growing demand for metals in the battery industry](#). LUT also hosted a student event, Positively Charged, on its Lappeenranta campus in October 2022.
- » A doctoral dissertation at LUT introduced a tool for calculating the manufacturing costs and environmental impacts of packaging. It facilitates decision-making and encourages investments in new, [environmentally sustainable packaging solutions](#).
- » [Forest industry emissions could be significantly further reduced](#). An LUT dissertation suggests new energy solutions, greater material efficiency and carbon dioxide recovery as the way forward.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



SDG 10 | REDUCED INEQUALITIES

- » LUT's English-language degree programmes, early bird discounts for tuition-fee-paying students, and Finland Scholarships ensure that talented students from also lower-income countries can study at LUT.

10 REDUCED INEQUALITIES



SDG 11 | SUSTAINABLE CITIES AND COMMUNITIES

- » In 2022, LUT established Finland's first electric transportation professorship and a respective new master's programme in Lahti.
- » The City of Lahti and the Päijät-Häme Central Hospital profited from LUT University's expertise in their projects to promote sustainable commuting.
- » LUT's research and laboratory services in Lappeenranta, Lahti and Mikkeli promote the creation and growth of sustainable business regionally in the circular economy, bio-based products, water and energy sectors.
- » LUT has studied how [digital platforms](#) can be used to promote a circular economy and what makes people and companies willing to join the platforms.
- » A study by LUT and the Technical University of Munich revealed a new, [competitive, low-emission production method for biofuel](#) from forest industry by-products.
- » A report by LUT shows that small modular nuclear power reactors could cut carbon dioxide emissions from district heating in Finland considerably. LUT is planning to set up Finland's [first research reactor](#) in Lappeenranta in collaboration with a partner from the US.

11 SUSTAINABLE CITIES AND COMMUNITIES



SDG 12 | RESPONSIBLE CONSUMPTION AND PRODUCTION

- » LUT appointed fashion reporter and economist **Sami Sykkö** as a professor of practice who promotes especially sustainable consumption and changes in consumer behaviour.
- » The Sustainability Days event organised by the student unions on the Lappeenranta and Lahti campuses focused on sustainable consumption, recycling, saving food, and carbon footprint.
- » Electronic waste is a global problem, and its amount will increase due to the shorter lifespan of products. LUT was involved in the project Sustainable Electronics and Optics (ECOtronics), which ended in 2022 and yielded two bio-based prototypes: a smart package that improves food safety and a circuit board for monitoring the environment.
- » LUT's research project [Willatus](#) develops new applications for sheep's wool fibres, lanolin and keratin to avoid valuable compounds from ending up as waste.
- » LUT opened a new gas separation laboratory in Lappeenranta in September 2022. The laboratory is used for research on air pollution, power-to-x technology, and carbon dioxide recovery, utilisation and storage.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



SDG 13 | CLIMATE ACTION

- » Some targets of LUT's Climate Action Plan have already been met, whereas most actions are currently in progress. The plan includes targets for cutting LUT's carbon dioxide emissions from various sources such as business travel, cars owned by LUT, district heating, waste management, electricity and food service.
- » The actions include significant investments, such as the procurement of carbon-neutral electricity and solar power production with LUT's own panels on the Lappeenranta campus.
- » Several campus events, such as Climate Puzzle workshops and Sustainability Days, have focused on reducing one's own carbon footprint.
- » The Intergovernmental Panel on Climate Change (IPCC) released the third part of its sixth assessment report, which refers to 38 scientific papers by LUT and cites LUT's research on ambitious climate change mitigation pathways and novel technology options.
- » One of the major focus areas of LUT research is the [hydrogen economy and clean electricity](#) to replace fossil energy sources. The Hydrogen Valley study in 2022 looked into possibilities [for a hydrogen economy in Eastern and South-East Finland](#) and showed that the region has significant renewable electricity production potential and ample amounts of bio-based carbon dioxide – both of which are crucial for new power-to-x products.
- » As another option to replace fossil energy sources, LUT has studied nuclear power and the [ecosystem for small modular reactors](#), which have been presented as an option for powering district heating in Finnish cities. Another study investigated [public perceptions](#) on the matter.



SDG 14 | LIFE BELOW WATER

- » LUT's water technology research in Mikkeli develops circular water supply management. The research deals with areas such as sewage treatment, water recycling, sludge refining, nutrient recovery, energy efficiency, energy recovery and, smart water solutions.
- » LUT has studied possibilities to use the common reed as a raw material for biofuel. Harvesting the reed efficiently would also help control the nutrient content of water bodies.
- » In the UHASA project, [LUT studied emerging pollutants, especially microplastics and pharmaceuticals in wastewaters](#), and different types of treatment plants and methods to remove pollutants. Recent studies have also focused on [microplastics in high-altitude lakes in the Himalayas](#) and [in Lake Saimaa, Finland](#).
- » In marine transportation, the ballast water that stabilises ships can bring invasive species to new areas and thereby cause serious harm. LUT's cleantech innovation project GreenBallast has studied how to motivate marine transport companies to treat their ballast water properly.
- » LUT donated to the John Nurminen Foundation for the protection of the Baltic Sea marine environment.



SDG 15 | LIFE ON LAND

- » LUT is involved in a strategic Finnish research consortium, BIODIFUL, which studies and supports [leadership that respects biodiversity](#) at the individual, organisational and societal levels. LUT develops and tests methods to calculate the biodiversity impacts of products or services. The aim is for businesses and consumers to take biodiversity better into consideration in decision-making.
- » LUT is a partner in LEVITOI, a collaborative project of universities and business enterprises that aims to reduce the environmental footprint of agricultural and forestry machinery and primary production logistics.
- » The Metsä360 award granted by LUT supports the growth of a responsible bioeconomy. In 2022, it was given to eniferBio for an effective mycoprotein production process.



SDG 16 | PEACE, JUSTICE AND STRONG INSTITUTIONS

- » LUT has been a member of the UN's Global Compact initiative since 2021.
- » LUT immediately condemned the military aggression launched by Russia in February 2022 and stopped collaboration with Russian and Belarusian organisations.



SDG 17 | PARTNERSHIPS FOR THE GOALS

- » Business Finland, Technology Industries of Finland, and the innovation consultancy Spinverse gave **Jero Ahola**, professor of energy efficiency and electricity-driven systems at LUT, the 2022 Innovation Professor of the Year award. The award was given for Ahola's research collaboration with companies, aiming for technological breakthroughs that help create new business and respond to global challenges.
- » LUT networks nationally with UNIFI and internationally with the Nordic Sustainable Campus Network and the International Sustainable Campus Network to reinforce universities' work in sustainable development by sharing information and best practices for common needs.
- » LUT cooperates closely with, for instance, its campus cities Lappeenranta and Lahti, the regional Greenreality network, and global and local industry partners to promote clean energy, a clean environment, and sustainable business creation.

