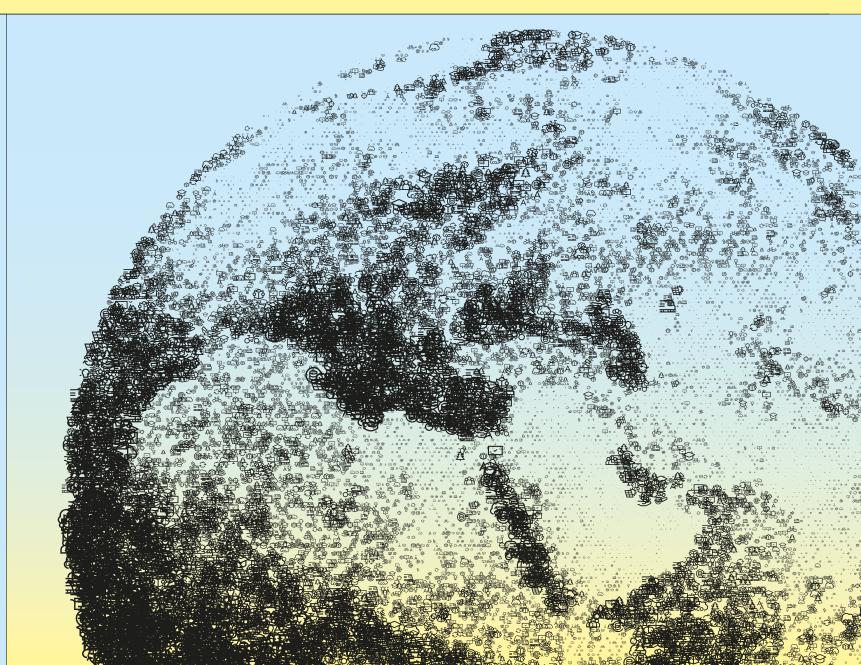
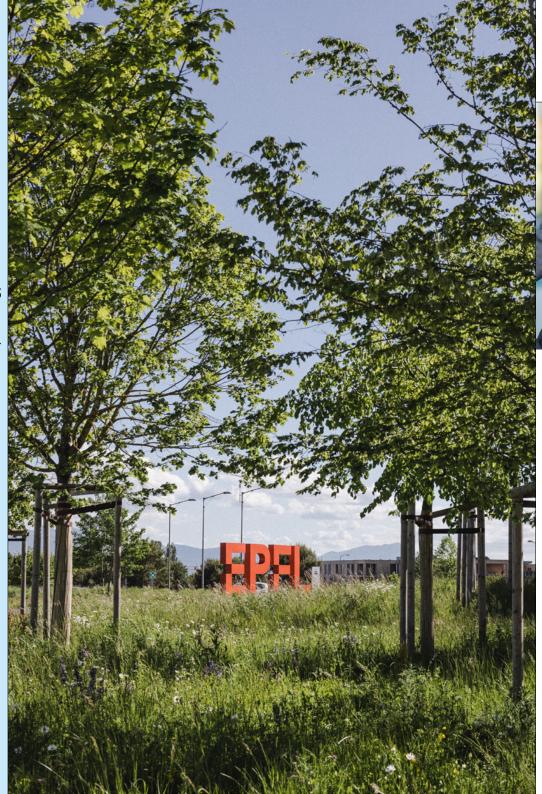
2030 Climate & Sustainability Strategy

EPFL's Climate & Sustainability Strategy spells out the steps we will take to fulfill our responsibility to our community, society and the environment. It provides a 360° view of our past, present and future sustainability-oriented actions implemented across our missions, campuses and operations.





A BOLD, COLLECTIVE VISION



The EPFL community is a rich source of energy and talent that can be harnessed to come up with innovative responses to the pressing challenges of climate change and sustainability.

And never has this been more crucial than now. The 2020s will be a pivotal decade in the history of humanity. It began with a pandemic, a war and the prospect of energy shortages, revealing the sometimes-alarming extent to which our world has become interconnected. However, the concerted response to the pandemic showed that we are capable of pooling and scaling up our efforts in order to overcome a global crisis. A similar response is needed in the face of climate change, which is manifesting itself through increasingly frequent heat waves, droughts

and floods, along with a rapid loss of biodiversity. These are formidable challenges to be tackled at all levels – individual, political and societal.

At EPFL, we firmly believe that today's universities are particularly well-suited to come up with ways of addressing climate change and achieving sustainability at the local and global levels. This Climate & Sustainability Strategy describes the steps that our School is taking across our campuses and operations to address these issues and build the requisite awareness within our community. These steps include introducing more efficiency and sufficiency into our processes and systems, preparing the next generation of scientists, engineers and architects that we train to help build a more sustainable society, and channeling our skills and know-how into the development of environmentally and socially responsible solutions.

This strategy sets forth a bold, collective vision, and it calls on the entire EPFL community to promote sustainability and inclusion within our School through concrete initiatives. Each of us must contribute to this effort. To that end, I would like to thank our students in particular for the essential role they're playing as a force for change, bringing a fresh dose of creativity, skills and clear thinking to the table. Together, we must act swiftly and decisively on all fronts to make this a decade of positive change.

Martin Vetterli, EPFL President

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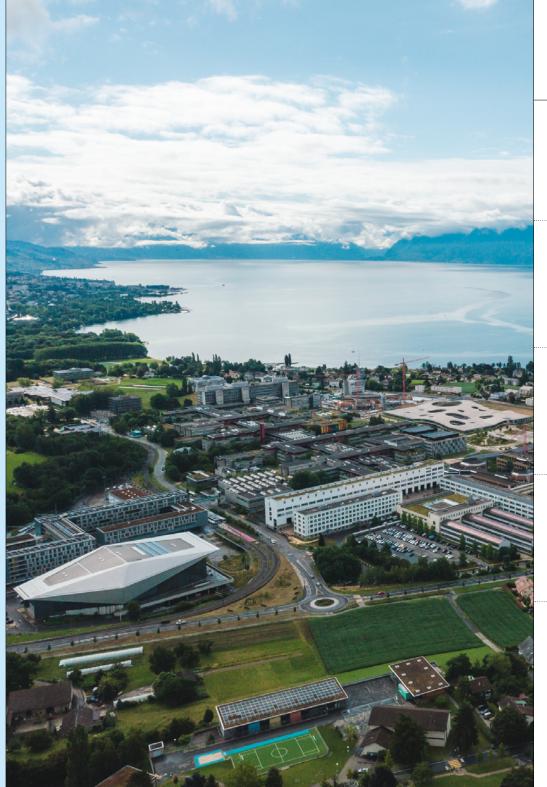
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A WORD FROM OUR VICE PRESIDENTS



Sustainability must be at the core of our teaching and research – not just in the "Why" but also in the "How."

Jan S. Hesthaven, Vice President for Academic Affairs



We want EPFL to be a place where students and employees can develop their full potential in a responsible manner. Our tradition of excellence can be maintained only with this goal in mind. Δ

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Gisou van der Goot, Vice President for Responsible Transformation



Innovation that neither drives sustainability nor delivers long-term benefits to society simply has no future.

Ursula Oesterle,
Vice President for Innovation



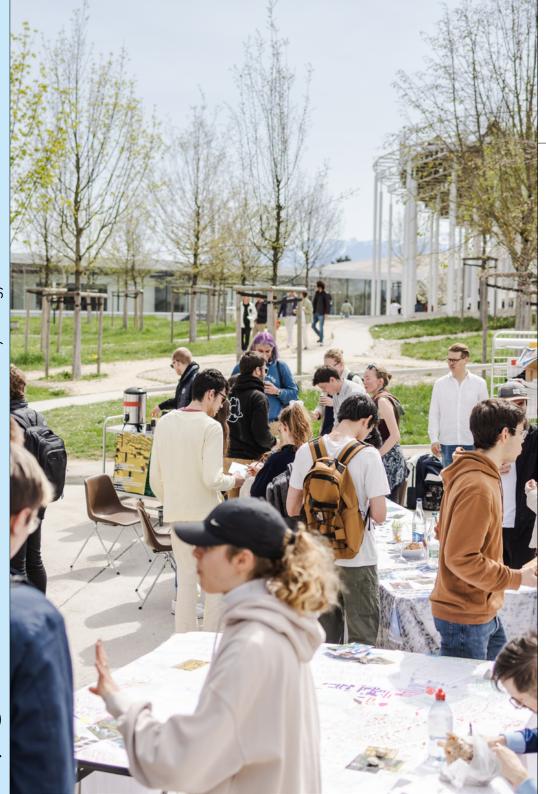
EPFL is like a small city: we must be resilient to climate change and committed to the well-being of our community, and we must preserve our natural environment.

Matthias Gäumann, Vice President for Operations



In terms of our finances, being a sustainable university means funding what's right and accepting funding only from responsible organizations with a long-term view.

Françoise Bommensatt, Vice President for Finances



A MESSAGE FROM OUR GENERAL STUDENT'S ASSOCIATION

There are currently over 11,000 students at EPFL – and together we're poised to become the next generation of industry-leading scientists and engineers. Many of us are active in student clubs, and that gives us an opportunity to call on the EPFL community and society in general to adopt more sustainable lifestyles. These clubs include broad associations like AGEPoly – which plays an important role in shaping EPFL degree programs and life at our School in general – and clubs devoted specifically to environmental and social sustainability, such as Unipoly, Zero Emission Group, GEHT, Ingénieur-e-s du Monde, Polyquity and PlanQueer.

Our clubs' efforts have been instrumental in building awareness about sustainability on all EPFL campuses. For instance, in 2019 students asked the School to create a vice presidency devoted entirely to sustainability, which was done 18 months later with the introduction of EPFL's Vice Presidency for Responsible Transformation. We've also made a pivotal contribution to EPFL's Climate & Sustainability Task Force, Teach4Sustainability working group, carbon-emissions calculator for research labs, first IT carbon footprint assessment, and more.

EPFL students in general are playing a critical role in finding solutions to today's sustainability challenges through our class projects, the ideas we come up with at sustainability-themed hackathons and participation of students to the Solutions4Sustainability program. University students – at EPFL and elsewhere – are a relentless and vital force for change.

We view this Climate & Sustainability Strategy as a reflection of EPFL's desire to remain at the forefront of excellence and innovation by orienting its research and education towards pressing social and environmental issues. We're fully behind this new strategy and expect to see concrete action taken as it's rolled out. What's more, we firmly believe that this strategy must evolve over time and remain a cornerstone of EPFL's culture for years to come.



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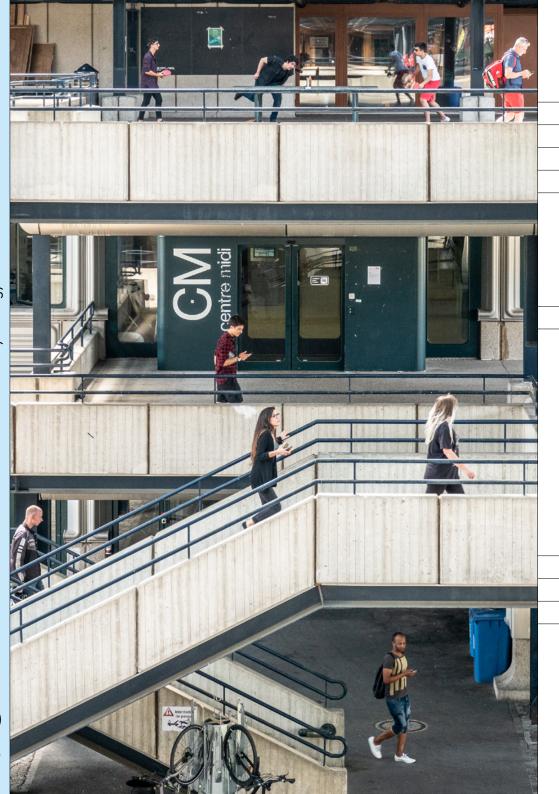


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INTRODUCTION

Sustainability in our view is an approach to shaping society that ensures the long-term viability of humankind and provides for maintained or enhanced well-being across generations. This entails limiting the environmental impact of human activity while ensuring everyone's basic needs are met, through policies designed to promote equality. Achieving this goal – and responding to the climate emergency – demands rapid, clear-cutting changes to our systems, processes and habits.

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EPFL, like all organizations, must shrink its carbon footprint. But given our role as a university at the forefront of education, research and innovation, we can and must do more. Our R&D should be oriented towards technology that's forward-looking from a societal and economic standpoint, and we need to work closely with businesses, local governments, NGOs and social scientists to make sure the technology we develop is designed for large-scale adoption. In education, where we have the biggest potential to drive change, we must train students on sustainability and give them the skills and knowledge needed to face the challenges ahead.

This 2030 Climate & Sustainability Strategy sets forth our vision and objectives, along with the short- and medium-term measures we'll take to reach our goals. This is the first time we're making our sustainability strategy available to the public. We will update this strategy regularly in response to the new data, regulatory requirements, standards and methods emerging from our R&D, joint ventures and collaborative efforts with other universities and with society in general.

The first part of this document explains how we'll incorporate sustainability into our education, research and innovation. The second part describes how we'll reduce our carbon emissions, embark on a path of carbon neutrality, and transition to a climate-responsible, sustainable School.

We have also set up a <u>Mebsite</u> that provides more details about each topic covered here and specific ways in which everyone in our community can help. The website also collects feedback, ideas and suggestions.



KEY STRATEGY OBJECTIVES

Education, research and innovation



→ Introduce a core sustainability class for all Bachelor's students starting in the 2024–2025 academic year



→ Introduce field-specific sustainability classes into all degree programs starting in 2023, in order to train the next generation of experts



→ Establish EPFL as a highly visible, leading and proactive university in sustainability – one that's developing science- and engineering-based solutions that respect our planetary boundaries



→ Transfer sustainable, innovative technology to society in order to reduce our energy dependence and shrink our carbon footprint; this will entail drawing on our know-how in sustainability, clean energy and carbon capture, use and storage



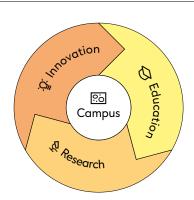
→ Introduce targeted programs to support new business creation in the fields of climate change and sustainability, and help startups reach their end-markets



→ Provide lifelong learning programs in sustainability-related fields for our community and society more broadly



→ Quantify the environmental footprint of our research activities and map out reduction measures



Sustainability at all levels

Interconnection between education, research, innovation and campus operations

Campus operations



→ Cut our energy-related carbon emissions by 50% (from 2006 levels) by 2030



→ Cut our travel-related carbon emissions by at least 30% (from 2019 levels) by 2030

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→ Cut our food-related carbon emissions by at least 40% (from 2019 levels) by 2030



→ Cut our commuting-related carbon emissions by at least 30% (from 2019 levels) by 2030



→ Train our community on green IT by 2025



→ Aim for a canopy index of 30% by 2030 on the Lausanne campus, in order to mitigate heat islands, promote biodiversity and improve well-being



→ Include ambitious sustainability criteria in all EPFL tenders by 2025



ightarrow Cut waste by 30% and increase our recycling rate to 80% by 2025



→ Develop and implement a transparent policy on sustainable investing and third-party funding

For more information, see the corresponding pages in this document or visit our website at
Mhttps://www.epfl.ch/about/sustainability

SUSTAINABILITY AT EPFL OVER THE YEARS

Visionary heating and cooling system installed using Lake Geneva water (upgraded in 1986 and 2022)
Unipoly founded as the first UNIL-EPFL environmental student club
At-cost bike repair station opened on the Lausanne campus (Point Vélo)
International Sustainable Campus Network (ISCN) created jointly with ETH Zurich
Train-ticket subsidies introduced (and increased in 2022)
EPFL Sustainability Unit created
Outreach program (also covering environmental topics) rolled out for local primary schools
EPFL issues its first greenhouse gas emissions report
EcoCloud center opened to develop sustainable computing systems
Mandatory "Global Issues" classes introduced for all first-year Bachelor's students
Semiannual Scientastic Festival launched with a focus on sustainability
EPFL issues its first equality action plan
Energy & Sustainability named as one of our six strategic focus areas

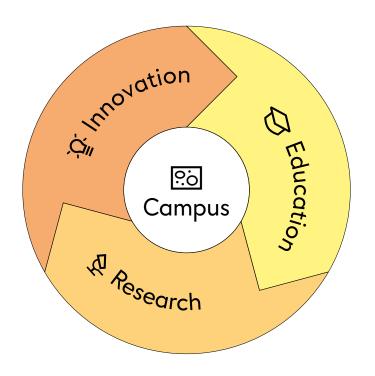
2019	Climate & Sustainability Task Force formed	
	EPFL unveils a sustainable food-services strategy	
2020	Tech4Impact initiative introduced to speed the development of sustainable, ground-breaking technology	
2021	New vice presidency created on sustainability (including the issues of respect, equality, diversity and inclusion)	
	Enterprise for Society (E4S) center established together with UNIL and IMD to study sustainable technology management	
2022	Lausanne campus becomes oil-free	
	100 EPFL labs conduct sustainability-oriented research (around 33% of the total, accounting for 37% of new < 5-year hires)	
	Teach4Sustainability committee created to develop sustainability-oriented educational programs for all EPFL students	
	Alpine and polar environment research center (Alpole) opened	
	Certificate of Advanced Studies (CAS) programs introduced on Resilient Value Chain Management and Certificate of Advanced Studies (CAS) program introduced on Circular Value Networks (rethinking industry)	
2023	Mapping of the power use in campus operations and research and energy reduction	
	Call for proposals issued under the Solutions4Sustainability initiative for renewable-energy and carbon capture, use and storage systems	

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CLIMATE AND SUSTAINABILITY IN EPFL'S MISSIONS AND MANDATES



The climate and sustainability challenges
we face are urgent and require
interdisciplinary and holistic approaches.
EPFL is committed to integrating
sustainability into its three core missions
of education, research and innovation

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EDUCATION

We aim to provide a sustainability-oriented education to our entire community, instructing scientists, engineers, and architects on the environmental and societal issues they will face, and on their responsibility to help build a sustainable society. We also train our teachers and give our students the tools, skills and knowledge to determine the role they want to play in securing the future of our planet.

Goals

- → Help teachers incorporate sustainability into their classes by 2023
- → Introduce a mandatory sustainability class for all Bachelor's students by 2024
- → Add field-specific sustainability classes to all our degree programs starting in 2023
- → Introduce a full degree program on sustainability by 2027



Action items

- → Run a Solutions4Sustainability student hackathon in 2023 and help students bring the most promising projects to fruition
- → Provide coaching so that student projects can incorporate significant elements of sustainability
- → Encourage learning by doing through cross-disciplinary projects aimed at solving sustainability problems
- → Offer coaching to faculty members who wish to incorporate sustainability into their classes ("train the trainers"), starting in 2023
- → Open a transferable skills center in 2023 to give students the competencies for addressing complicated, multifaceted challenges

- → Introduce a core sustainability class for all Bachelor's students starting in the 2024-2025 academic year
- → Add field-specific sustainability classes to all degree programs starting in 2024
- → Expand our Minor in sustainability option to students in all sections by 2024
- → Introduce a cross-disciplinary Master's program in sustainability by 2025
- → Offer a complete Bachelor's program in sustainability by 2027























Teach4Sustainability working group created to design and implement sustainability classes for all EPFL students

2021 Master in Energy Science and Technology

Sustainability expert appointed to support student projects

Climate & Sustainability Action Week (CSAW) launched to explore today's complicated societal and environmental challenges

Enterprise for Society Center introduced a joint Master's program in sustainable management and technology (involving EPFL, UNIL and IMD)

Minor introduced in engineering for sustainability

2020 Sustainability certification introduced for internships

Bachelor's, Master's and MOOC classes mapped to sustainability topics

Climate awareness workshops introduced for students and staff (approx. 25 times/year)

Sustainability education team created to speed the rollout of sustainability classes for all students

2014 Mandatory "Global Issues" classes introduced for all first-year Bachelor's students

First annual Durabilis Award handed out to a student project on sustainability



MAKE PROJECTS

MAKE projects are cross-disciplinary projects designed to give students hands-on experience solving real-world problems, helping them improve their technical knowledge, teamwork and project management skills.

These projects combine education, research and innovation and involve hundreds of students each year. Around 20 MAKE projects are currently under way or have been completed. A growing number of projects address sustainability issues, while some – such as the ones described here – prioritize sustainability as a core element of their objectives.



rebuilT This project explores the reuse of building materials through a low-tech approach, with the goal of encouraging low-carbon, zero-waste habitats and lifestyles. Students are examining ways to recover materials from a condemned building near our Lausanne campus and use them to build a community pavilion (as a demonstrator) that can be dismantled.



GenoRobotics Here students are developing a small robot to automatically analyze biological samples out in the field and speed the biodiversity assessment process. Students are working with EPFL alumni and botanists to create their fully portable, robust robot, which will run genetic analyses such as DNA extraction and sequencing. The system is being tested in primary tropical forests.



Carbon Removal Under this project, students are developing a sustainable, low cost, scalable system for capturing carbon directly from the air, either to reuse it or store it in underground geological formations. The system employs graphene membranes and innovative porous materials that were developed at EPFL.

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LIFELONG LEARNING AND OUTREACH



We offer a range of sustainability-oriented educational programs for learners both before and after university studies. These programs are carried out through our various outreach and continuing education initiatives.

Our outreach initiatives foster proactive, open dialogue with the general public in order to promote science and engineering, draw students to careers in these fields and help policymakers make decisions that are evidence-based, inclusive, ethical and environmentally responsible.

Our continuing education initiatives are designed to share recent developments in science and engineering that can be useful to our society and economy. People working at businesses, NGOs and government agencies take our continuing education programs to acquire the skills they need to promote sustainability, better understand the issues involved, get expert insight before making key policy decisions, refresh their engineering and other technical skills, and help drive change to a more sustainable, resilient society.

Action items

Outreach

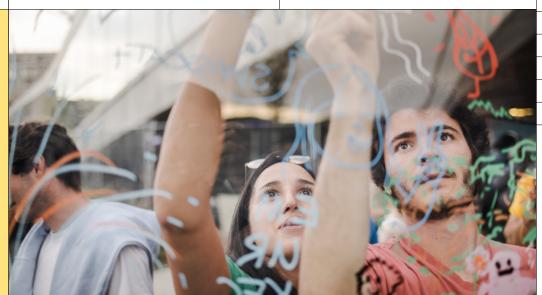
- → Add more sustainability-related content to our outreach initiatives
- → Develop sustainability classes for primary and secondary school teachers
- → Hold "pre-university weeks" on sustainability topics
- → Carry out citizen science initiatives on sustainability-related issues
- → Train our researchers on public outreach

Continuing education

- → Introduce new programs on sustainability and the energy transition:
 - Master of Advanced Studies (MAS) in Sustainable and Resilient Value Chains (2023)
 - A pilot program on sustainable cities (2023)
 - A MAS in sustainable energy system engineering (2024)
- → Work closely with Swiss businesses, the federal government and NGOs to design sustainability-oriented programs that meet their needs

Goals

- → Position EPFL as a Swiss leader in lifelong learning in sustainability and the energy transition, with programs for experts and organizational leaders
- → Expand our range of continuing education programs on sustainability and the energy transition
- → Build awareness about sustainability and help train Swiss primary- and secondary-school students and teachers
- → Work with other sustainability stakeholders to make sure our classes have maximum impact



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Outreach

2015

Semiannual Scientastic festival introduced with a regular focus on sustainability issues

2009

Science Bus program rolled out – a bus that goes on permanent tours of Switzerland and introduces primary school students (some 14,000/year) to various science topics, including some on the environment

2003

MINT Program introduced to encourage girls aged 7–16 to pursue studies in mathematics, computer science, the natural sciences and engineering

Classroom Day program introduced in which students from 100 primary school classes spend a day at EPFL taking lectures and workshops on sustainability topics

Continuing education

2022

Certificate of Advanced Studies introduced on Resilient Value Chain Management, or how to use smart supply-chain systems with a holistic view

Certificate of Advanced Studies introduced on Circular Value

Networks, or how to rethink global supply chains based on circular economy principles

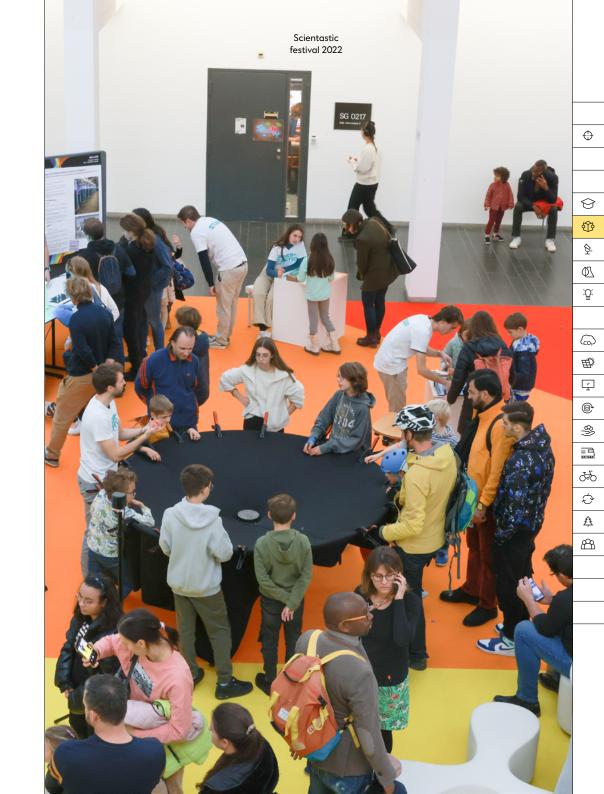
2018

Class on geothermal energy structures introduced for constructionindustry professionals, providing guidance on developing low-carbon energy facilities

Sustainability-related exhibitions held at Archizoom and EPFL Pavilions, inspired by societal challenges and intended to foster dialogue on the contributions made by science and engineering

2009

International Sustainable Campus Network (ISCN) created (and chaired by EPFL starting in 2016; EPFL hosted the ISCN annual conferences in 2009 and 2021)



RESEARCH



We are committed to conducting high-quality, high-impact research in all science and engineering fields related to the climate and sustainability. Our research is carried out through the kind of collaborative, cross-disciplinary approach that's needed to understand the complex ways in which human activities and the environment interact and to develop comprehensive, actionable solutions.

Climate change and sustainability call for methods that sit at the crossroads of basic research and technological innovation. At EPFL, we pool the efforts of our schools, colleges, institutes and R&D centers to implement such methods to address strategic focus areas related directly or indirectly to climate change, energy and sustainability.

↓ Test bench in the laboratory of hydraulic machines (STI-IGM)



Goals

- → Position EPFL as a leading university in developing science- and engineering-based solutions to sustainability challenges
- → Develop innovative, sustainable systems for reducing our energy dependence and shrinking our carbon footprint, by drawing on our know-how in sustainability, clean energy, power storage, and carbon capture, use and storage
- → Build on-campus demonstrators and turnkey systems in association with local businesses and government agencies, especially in the Swiss cantons where our campuses are located
- → Collaborate with other Swiss and international universities (including those in the ETH Domain) on sustainability-oriented projects and initiatives, anchoring our efforts at the national and international levels
- → Help policymakers better understand sustainability issues and assess different policy options

Action items

- → Implement the call for proposals under the Solutions4Sustainability initiative
- → Enhance our Energy Center's role in uniting EPFL programs and initiatives on energy and sustainability, using our unique research strengths in the fields of hydro, smart grids, fusion and fission, so as to leverage synergies and increase our impact.
- → Use our campuses as living laboratories for the sustainability research done by our students and faculty
- → Expand our EPFL Valais R&D center on clean energy and power storage
- → Expand the work done at EPFL Fribourg on sustainable building systems and construction methods, with the aim of opening an R&D center on worldwide sustainable construction
- → Hire additional faculty members specialized in sustainable materials, manufacturing methods, transportation systems and healthcare devices (37% of new hires in 2017–2022, 54% of professorship postings in 2023)



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2022 100 EPFL labs conduct sustainability-oriented research (around 33% of the total)

Alpine and polar environment research center (ALPOLE) opened

Enterprise for Society Center (E4S) established to study and share findings on the systemic risks that could affect our world and economy, along with methods for mitigating the impacts

CLIMACT opened jointly by EPFL and UNIL to conduct cross-disciplinary climate research and identify systemic measures to implement

The Transnational Red Sea Center opened to deploy science and diplomacy to help save coral reefs

2017 Energy & Sustainability named as one of EPFL's six strategic focus areas

2015 EPFL Fribourg campus opened to study sustainable building systems and construction methods

2013 EPFL and CSEM jointly open the Swiss Center for Sustainable Energy to develop technology in photovoltaics, renewable energy and energy-management systems

2012 EPFL Valais campus opened to study clean energy systems, green chemistry and the environment

2007 EPFL Energy Center opened to address challenges in the areas of energy efficiency, power storage and conversion

2002 EPFL's School of Architecture, Civil and Environmental Engineering (ENAC)



call for proposals

SOLUTIONS4SUSTAINABILITY

The Solutions4Sustainability initiative is intended to leverage our strengths in research, education and innovation to develop technology in the areas of clean energy, power storage and carbon capture, use, and storage. EPFL will provide CHF 20 million to support projects that propose new solutions that have a high implementation potential. All EPFL vice presidencies are taking part in this initiative in order to bring together research groups and students from across our School, install demonstrators on our campuses, scale up the selected technology, facilitate technology transfer and work with other stakeholders (such as EPFL Philanthropy, local governments and startups) on implementation.

The proposals, submitted in early 2023, are currently being evaluated. An energy and sustainability hackathon will also be held under this initiative, with support given to the winning ideas to help bring them to fruition.





→ Aerial view of the Lausanne campus

Focus areas 1 **ENERGY**

Over 70% of the world's greenhouse gas emissions come from energy conversion processes used in manufacturing, transportation and buildings. At EPFL, scientists and engineers are studying ways to cut energy costs, produce renewable energy more efficiently and determine which forms of zero-carbon power – including nuclear - could be used in parallel with renewables to secure our baseload capacity. In addition, in the thrust to incorporate different forms of renewable energy into our baseload supply, our scientists investigate how to upgrade our power grids with enhanced prediction, planning and control capabilities as well as flexible, environmentally friendly power storage systems.

Renewable energy

When it comes to solar power, EPFL researchers are designing new systems and materials for the next generation of photovoltaic technology. A considerable amount of R&D is also being done on hydroelectric power at our Valais campus. Three-quarters of Switzerland's existing hydropower plants will come up for renewal in the next 30 years - a major opportunity that we at EPFL will leverage in order to modernize these plants and develop new operating processes, to help overcome the existing technical and economic hurdles.

Nuclear power

Nuclear fusion is a prime candidate for generating baseload power as part of a carbon-free energy mix because, as opposed to nuclear fission, it is cleaner and safer. Even though a generalized use is decades ahead, fission research will be an important element of the energy transition. We want to enhance the role that EPFL and Switzerland as a whole are playing in the development of fusion technology. This will entail building more powerful testing facilities, orienting our R&D towards new reactor technology, forming new public-private partnerships and leveraging synergies with the fission safety research being done at the Paul Scherrer Institute.

Integrated energy systems

Global efforts to efficiently include renewable energy sources are challenging because many of today's energy systems are not properly integrated. New technology is needed - such as stochastic resource forecasting and multi-time scale power storage – if we want to effectively consolidate power generated from different sources. Our scientists and engineers are breaking new ground in the development of this kind of technology and the associated operating processes, with the goal of providing sustainable power systems to manufacturers, utilities and consumers and ultimately shrinking the carbon footprint of our entire energy supply.

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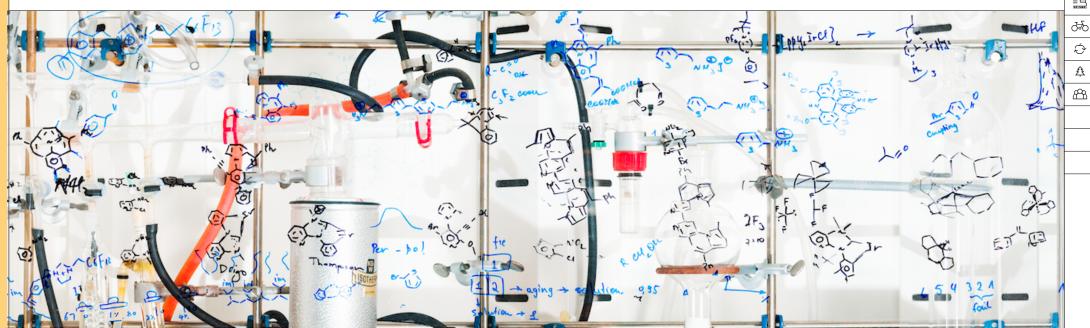
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↓ Laboratory of Nanochemistry for Energy (LNCE)



Focus area 2

SUSTAINABLE CHEMISTRY AND MATERIALS

Chemists, materials scientists, and chemical engineers have a crucial role to play in promoting sustainability by developing technology that allows for carbon-free, zero-waste chemical manufacturing. The chemical industry accounts for some 5% of Switzerland's GDP and 45% of its exports, making it the country's biggest manufacturing industry. It's also the country's largest oil and gas consumer and second-largest greenhouse gas emitter. Around 95% of the 300,000 chemicals produced in Switzerland are fossil-fuel derived.

Sustainable fine chemicals

Many polymers and other chemical compounds are made by synthetic processes that are often inefficient, heavily dependent on fossil compounds and produce large amounts of waste. EPFL research teams are developing new catalytic processes based on abundant (rather than rare) earth elements, with a reduced number of synthesis steps, using biomass as feedstock and sunlight as energy source. In addition, computational, theoretical and experimental chemists are working together to accelerate discovery by developing numerical methods based on machine learning, artificial intelligence and data science.

Sustainable materials

Today's materials have become so advanced that they now draw on most elements of the periodic table. Unfortunately, some of the scarcer elements will eventually either be depleted or be stock-

piled strategically by a single country or a handful of countries. We therefore need to develop new materials made of abundant elements and implement more efficient processes for recycling existing materials. These are the goals of several of our research groups in fields ranging from organic chemistry to inorganic compounds.

Carbon capture, use and storage

Carbon must be removed from the atmosphere to reduce greenhouse gas emissions, but it is also an attractive feedstock to replace fossil carbon in the synthesis of high-value chemicals. EPFL scientists and engineers are developing advanced materials to capture and separate carbon, as well as sustainable and highly efficient thermo- and electrochemical processes to convert carbon into industrial chemicals such as methane, ethylene and ethanol. Efforts are also being made to fix CO₂ at relevant time scales in materials or underground, with demonstrators in Switzerland.

Hydrogen for energy storage

Hydrogen produced by water electrolysis can be used to store renewable energy. EPFL is continuing its pioneering research in the development of photocatalytic hydrogen production systems and high-performance hydrogen storage materials. It has launched a National Center of Competence in Research on Catalytic Reactions, together with ETH Zurich, to strengthen these research areas necessary for the energy transition.



Focus area 3

ECOCLOUD SUSTAINABLE COMPUTING CENTER

EcoCloud is an R&D center established to promote sustainable, low-carbon IT systems. Its work focuses on developing cloud-computing and artificial-intelligence technology that can help save energy, preserve natural resources and protect biodiversity. The goal is to incorporate large IT systems and data centers into the circular economy by maximizing the use of renewable energy, minimizing their carbon footprint, and mitigating any long-term damage to the environment.

EcoCloud brings together 27 labs from four EPFL schools, 12 large IT companies (including Microsoft, IBM, Meta, HPC and Intel) and several EPFL spin-offs. We adhere to this kind of joint effort because we believe sustainable cloud systems must be developed holistically from the ground up, in association with industry professionals.

EcoCloud objectives

Develop next-generation data centers incorporating advanced technology for cooling, power generation, and data storage and management, all designed to run on renewable energy as much as possible.

Develop new machine learning systems to train artificial intelligence models (including deep learning) that are less energy intensive.

Open a facility for running experiments on sustainable computing systems (such as low-power computing and cloud storage platforms based on application-specific accelerator architecture and data-storage technology) that are designed to deliver order-of-magnitude improvements in the per-unit power requirement.

Run the Sustainable Digital Twins for **Smart Cities and Transportation Systems** initiative, jointly with ETH Zurich.

EcoCloud also carries out programs to raise awareness about best practices in energy efficiency, emissions reduction and sustainability as they relate to cloud computing. Its engineers are developing a program (called Cumulator) to estimate the carbon footprint of deep learning algorithms and are taking part in a number of outreach activities such as an annual Swiss IT Sustainability event for promoting green IT at EPFL and beyond.



Focus area 4

SUSTAINABLE CONSTRUCTION

The construction sector is responsible for more than half of the world's anthropogenic carbon emissions, and nearly 50% of these emissions come from the grey energy of buildings (two-thirds from concrete and steel). Due to the very composition of planet Earth, alternatives are limited, but it is possible to significantly reduce the environmental impact of our construction methods.

LC3 is a game changer for sustainable construction

Concrete is the most widely used construction material in the world, and the production of its main ingredient - cement - generates 8% of total anthropogenic carbon emissions. EPFL has developed a limestone calcined clay cement (LC3) that can reduce cement-related emissions by up to 40%. If LC3 were used worldwide, emissions could be reduced by more than 500 million tons of CO₂-eq/year, which corresponds to about 10 to 20 times the total annual emissions of Switzerland.

LC3 offers several other advantages: it uses natural resources sustainably, is cost-effective (since calcining clay is relatively cheap), and is more resistant to corrosion. Also, it is made from raw materials that are abundant in developing countries where the growth of the construction sector will be strongest. LC3 manufacturing plants are already operational (in India, Ghana, and Cuba), with others under construction in some 40 countries.

Influencing the future of construction worldwide

EPFL aims to position itself as a world leader in sustainable construction by opening an R&D center entirely dedicated to this issue. The focus will be on developing and promoting realistic, scalable and cost-effective solutions to minimize construction-related emissions and achieve global environmental and social sustainability goals. Scientists and engineers at the center will partner with their counterparts at other leading universities and with companies in the construction sector. Their efforts will include training and knowledge sharing for professionals in the sector. The center will also offer a master's degree program in sustainable construction to prepare the next generation of leaders.





2030 Climate & Sustainability Strategy

GREEN LABS



Because our research activities also have an impact on the environment, we're taking steps to measure and reduce this impact and shrink our carbon footprint. Since labs have very different needs and functioning, it is essential to adapt the measures to the specificities of each. We're also raising awareness among our research staff and updating our logistics, purchasing and organizational processes in order to make our research compatible with a climate-neutral, sustainable society.

↓ Bio-electron microscopy platform.



Goals

- → Educate our scientists, engineers and research staff on the environmental impact of their activities
- → Obtain a comprehensive view of our research-related carbon emissions by 2026
- → Take part in and promote national and international green lab initiatives and networks

Action items

- → Appoint sustainability coordinators at all EPFL schools
- → Name contact people at each research lab to outline and share best practices and ensure swift implementation by 2026
- → Develop and implement a carbon emissions calculator for the research activities at all EPFL schools and colleges by 2024
- → Establish a working group mandate to propose solutions to reduce energy consumption in large platforms and computing facilities
- → Train lab staff (including PhDs and postdocs) on sustainable lab practices
- → Encourage bottom-up initiatives at our labs
- → Increase the sharing and reuse of research equipment and the sharing of lab space
- → Extend the lifespan of our equipment
- → Incorporate sustainability topics into onboarding and training materials for faculty members and other scientists and engineers



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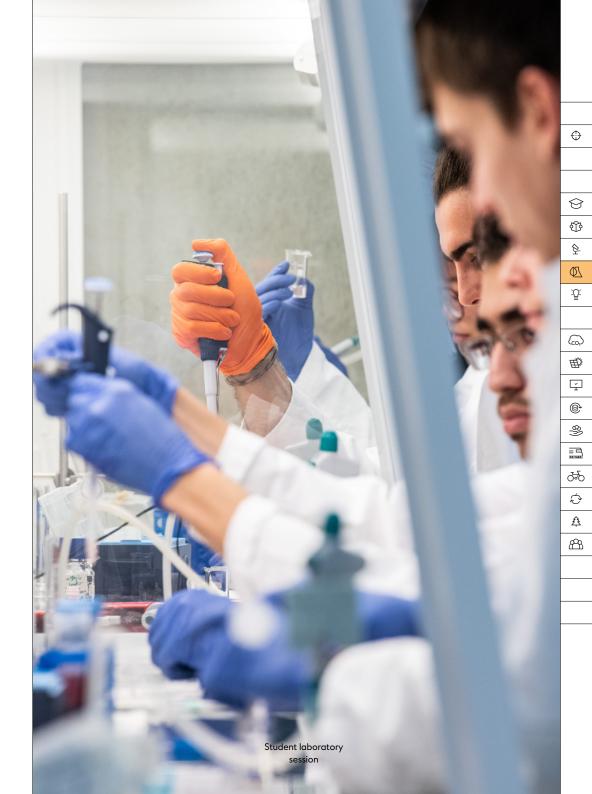
Swiss working group created on green labs

2020

Green lab pilot project carried out at the School of Life Sciences

- Annual carbon emissions calculated for a dozen labs and research facilities
- Carbon emissions calculator developed in association with the Zero Emission Group student club
- Green lab guidelines issued and training workshops held
- Lifecycle assessments developed for our animal facilities
- A team of faculty members created to provide feedback on the steps taken

2018 Sustainability offices set up at the Schools of Life Sciences (2018), Basic Sciences and Engineering (2022)



INNOVATION



We gim to build and foster a culture of innovation at our School that's geared towards developing responses to sustainability and other societal challenges. These innovation efforts are aligned with our educational and research activities and involve a series of programs and initiatives to encourage entrepreneurship and new forms of joint ventures with industry. The goal is to leverage EPFL's science and engineering excellence and our broad range of research disciplines and cultural diversity in order to have a tangible impact at the global level.

 \downarrow Computer-generated image of the future EcoTope building



Goals

- → Position EPFL as a world leader in technological innovation for climate change and for the benefit of society in general
- → Instill an innovation-driven culture that encourages students and staff to develop solutions through systemic, multi-stakeholder approaches
- → Encourage new business creation in the field of sustainability
- → Support the development of low-carbon, resilient approaches (including low-tech ones) to help build a more resource-efficient society
- → Help drive the paradigm shift towards a circular economy
- → Contribute to the design of new regulations to promote the adoption of sustainable systems and methods

Action items

- → Open EcoTope, an extension of EPFL Innovation Park, by 2025 (in the Vallaire-Venoge area) to bring businesses, policymakers, service providers and end users together to leverage deep tech and scientific research to solve society's most pressing problems
- → Develop and implement targeted programs to support sustainability-oriented startups
- → Strengthen EPFL's existing sustainability programs such as Changemakers, Tech4Dev and Femtech
- → Help businesses achieve their sustainability goals, such as by informing them of research developments in the field and working with them to outline pathways to implementation



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Achievements

2021 EPFL Innovation Park Foundation hired a sustainability manager and sets up a "green team"

Tech4Impact introduced a summer school program to teach students from around the world how to help design a sustainable future

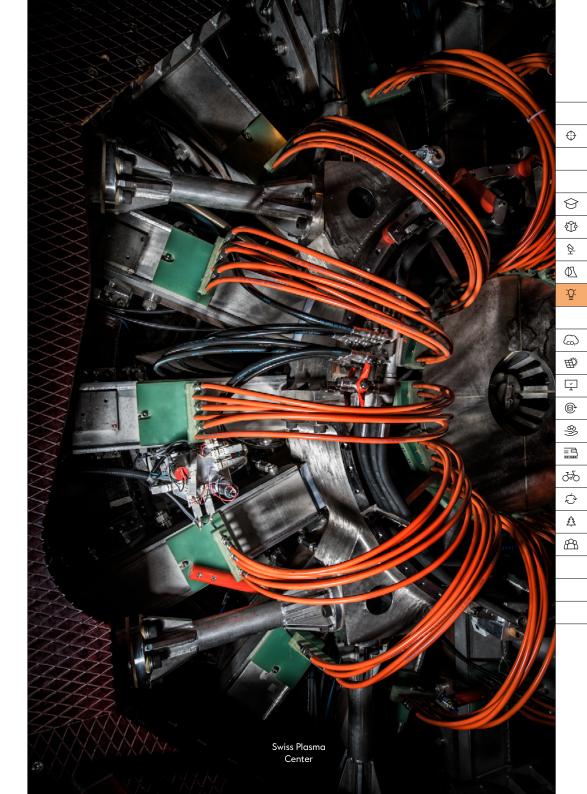
Tech4Impact initiative introduced to support research groups at Swiss universities who are tackling the most pressing environmental and societal challenges

Changemakers program introduced to develop students' entrepreneurship and sustainability skills and equip them to make an impact individually and collectively in their careers

Showcase 2030 annual event launched to help further the UN's 2030 Sustainable Development Agenda, bringing together EPFL scientists, engineers and students along with startups, businesses and investors

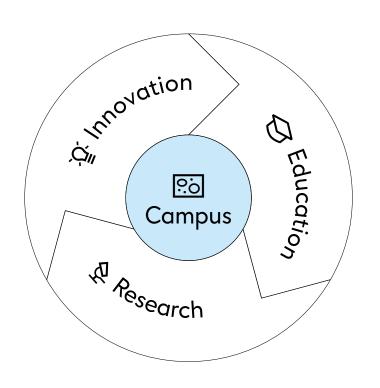
Tech4Dev program introduced to implement sustainable, innovative technology in the developing world, in association with NGOs

EssentialTech Center opened to harness science and technology in order to promote sustainability, humanitarian action and peace



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CLIMATE AND SUSTAINABILITY ON EPFL CAMPUSES

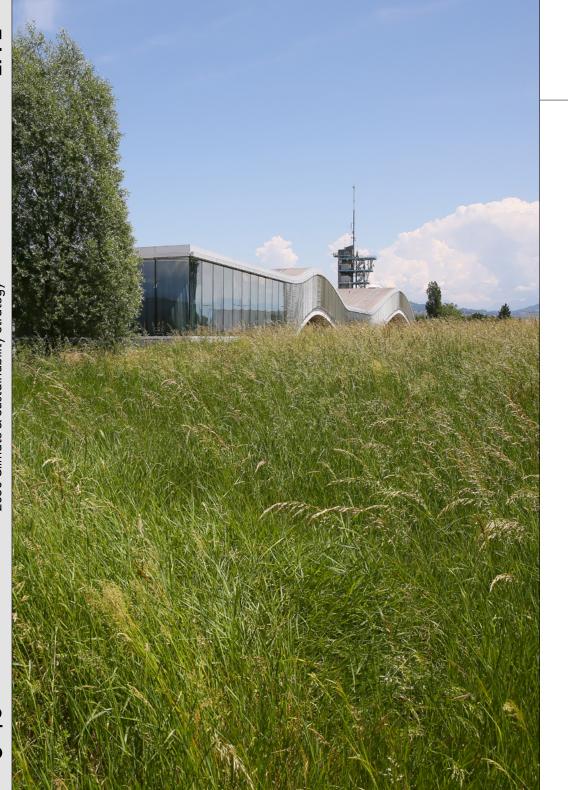


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9 focus areas for making our campuses more sustainable, building on the efforts of our entire community



EPFL'S CARBON FOOTPRINT

Cutting our carbon emissions is our top priority

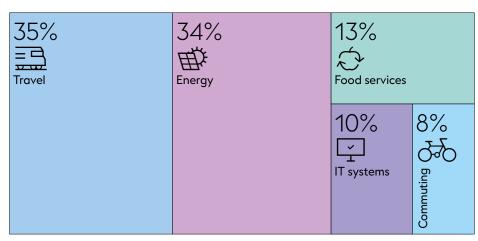
We perform our carbon footprint monitoring using the Greenhouse Gas Protocol guidelines. However, carbon accounting is a complicated task with frequently changing methods and scopes. We began monitoring our energy-, travel- and commuting-related emissions in 2010, and added our food- and IT-related emissions in 2019. We're also in the process of evaluating the carbon footprints of our campus buildings (embodied energy) and procurement processes (for research equipment and supplies, office furniture, etc.), so that we cover all three scopes in the Protocol.

We have decided to set 2019 as the baseline year since the pandemic artificially lowered our emissions in 2020–2022. Our Lausanne campus became entirely oil-free in 2022, and we now use only marginal amounts of natural gas.

Because our priority is to cut carbon emissions, we introduced emissions-reduction measures in all areas of our operations. But these emissions are just one part of our overall environmental impact; other factors relate to the depletion of natural resources (such as energy, water and abiotic resources) and the loss of biodiversity, and they're addressed in several areas of this strategy.

Total CO₂ balance

Breakdown of EPFL's partial GHG emissions in 2019



Note: detailed figures ($\underline{\hspace{-0.05cm}}$) page 46) and calculation methodology available on our $\underline{\hspace{-0.05cm}}$ 0 website

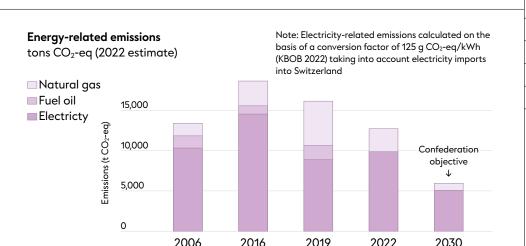
At EPFL, we also undertake to:

- → Comply with the Swiss government's climate requirements of:
 - cutting energy-related greenhouse gas emissions by 50% (from 2006 levels) by 2030
 - becoming carbon neutral by offsetting energy-related emissions (starting in 2020)
- → Help meet the objectives of the Paris Agreement, which Switzerland ratified in 2017

Beyond carbon neutrality through offsetting, EPFL aims for Net Zero by 2040

Achieving net zero emissions means removing from the air the same amount of carbon that is released by our operations. This requires carbon sinks (such as forests) or negative emissions technology

(like carbon removal systems). At EPFL, we have a number of initiatives in place to develop technology for capturing, using and storing carbon; these include the Solutions4Sustainability initiative and many research projects at our labs. Our School intends to serve as a living lab for testing the most promising systems. In reaching net zero, we will work with other ETH Domain organizations through the initiatives Swiss Center of Excellence on Net-zero Emissions (SCENE) and Speed2Zero. We are in talks to set up a Net Carbon Fund. But because new technology will not be enough to get us to net zero, our top priority remains cutting our carbon emissions.



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ENERGY AND BUILDINGS



In 1978, following the first oil crisis, EPFL made a visionary decision to install a plant on our Lausanne campus that draws thermal energy from Lake Geneva. This energy was initially used for cooling purposes and then, through the addition of heat pumps, for buildings' heating systems. The plant was subsequently renovated so that, in 2022, the campus was entirely oil-free.

Today an estimated 54% of our consumed energy comes from Lake Geneva, 6% from natural gas and 40% from electrical power, approximately half of which comes from renewable sources in Switzerland. That means around 70 to 80% of the energy used on our Lausanne campus comes from renewable sources. However, the campus still emits over 16,000 tons CO₂-eq per year, making up about a third of our measured carbon footprint (Graph below and 1, p.46). This is due to the significant CO₂ impact of importing fossil fuel-derived electricity into Switzerland in winter.

Total CO₂ balance

Breakdown of EPFL's partial GHG emissions in 2019

35% Travel	34% Energy	13% Food services		
		10% Y IT systems	Commuting 04 00	

Goals

- → Cut our power use by 15% by 2024 (from 2019 levels), in addition to the reduction in CO₂ emissions achieved through the new thermal power plant
- → Speed the pace of renovation and energy optimization of technical installations
- → Continuously improve our buildings' energy efficiency
- → Raise awareness within our community about energy saving measures and train people on the necessary skills
- → Prioritize energy sufficiency measures at both the overall and individual levels
- → Become completely independent of fossil fuels
- → Expand our on-site production of renewable energy
- → Meet Swiss government's targets of 50% reduction of energy-related carbon emissions and carbon neutrality by 2030

Action items

- → Finalize the long-term sustainability strategies for renovating and densifying our campuses and for improving our public spaces
- → Obtain sustainability certifications for all newly constructed buildings
- → Implement a new energy management strategy that incorporates smart grids and demand management (by 2025)
- → Lower the temperature of our buildings in the winter to the minimum recommended by the Swiss federal government (saving 2 GWh/year)
- → Use 100% LED lighting by 2025
- → Install 8,000 m² of photovoltaic panels (generating 1.6 GWh/y)
- → Replace all our gas-fired facilities with ones running on renewable energy or electrical power
- → Purchase renewable energy certificates
- → Purchase offsets for our remaining energy-related emissions

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Renovation work completed on the Lausanne campus' thermal power plant, making it a campus oil-free

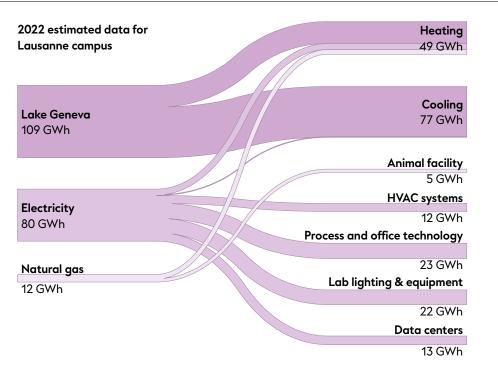
2-MW data center connected to the thermal power plant on the Lausanne campus, so that servers are cooled with lake water and the heat they generate is recovered

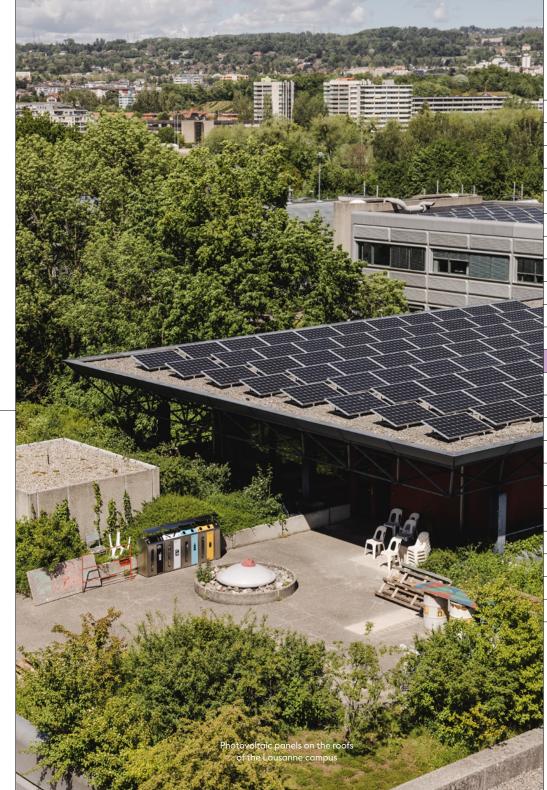
The medium- to low-voltage power conversion system on the Lausanne campus reduced from 21 kV to 20 kV, reducing power use by 3%

Switzerland's biggest urban solar park (15,500 m²) built on the Lausanne campus, generating 2.2 GWh/year

Heat pumps installed at the Lausanne campus' thermal power plant, allowing for lake-water mediated heating

Thermal power plant built on the Lausanne campus that draws lake water for cooling





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IT SYSTEMS



As a technology school, EPFL is particularly sensitive to the environmental impact of its IT systems. This impact stems not only from greenhouse gas emissions but also from the use of natural resources such as energy, water and rare-earth minerals. Roughly 10% of our carbon footprint in 2019 came from the manufacture of IT equipment including computers, screens and tablets, while another 4% (or 6,800 tons CO₂-eq) came from IT-related power use. Aware of its ever-growing digital needs, both for teaching and research, EPFL is committed to implementing an exemplary Sustainable IT Strategy.

Total CO₂ balance

Breakdown of EPFL's partial GHG emissions in 2019

35% Travel	34% Energy	13% Food services		
		10% Y IT systems	Commuting 04 00	

Goals

- → Reduce the environmental impact of our IT systems, working with the EcoCloud center for sustainable computing
- → Train our entire community on digital sufficiency by 2025

Action items

→ Conduct an in-depth assessment of our IT-related environmental footprint

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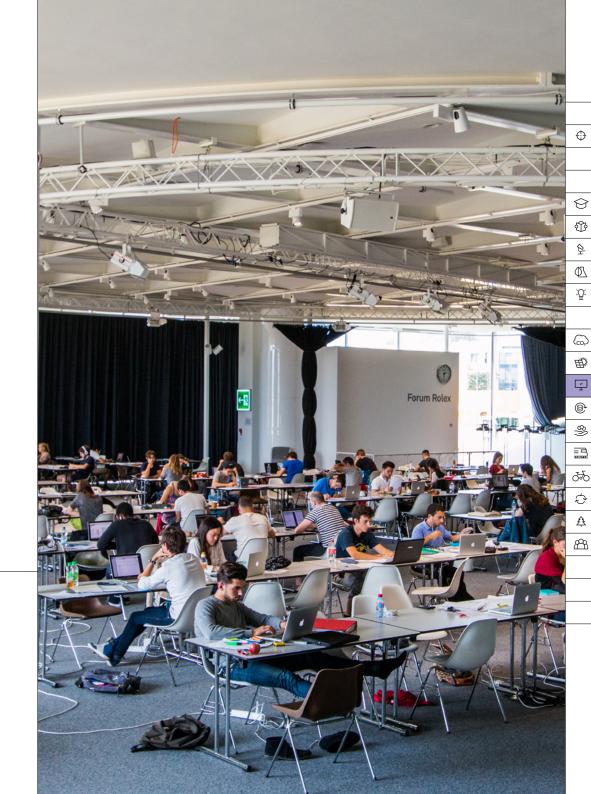
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- → Develop and implement a sustainable IT strategy, including for outsourced services
- → Open a center for Research Computing to improve the performance, efficiency and sustainability of our IT systems
- → Coordinate IT equipment purchases and improve the inventory process
- → Encourage the repair and reuse of IT equipment, so as to extend computers' lifespan to six years
- → Issue a best-practices guide and other awareness-building materials
- → Set up an at-cost repair service for smartphones and tablets, for use by our students and staff
- → Update our website to incorporate best practices in sustainability (in the areas of design and hosting, for example)

Lake water system installed to cool three data centers (0.5 MW, 2022 1 MW and 2 MW) and recover the heat generated by servers Pilot project carried out for a low-carbon website (the EPFL Sustainability Unit's website) Act for Change awareness campaign carried out on sustainable IT 2021 Preliminary study carried out on the environmental impact 2020 of EPFL's IT systems EduNum initiative introduced to train Canton of Vaud secondary-2017 school students on sustainable IT Lifespan of EPFL computers extended from 4 to >5 years 2015 Stringent sustainability criteria introduced for the purchase of IT 2012 equipment and servers EcoCloud center opened to develop sustainable computing systems and identify methods for increasing the use of renewable energy in data centers Computer repair center opened that now repairs or recycles some 2007 700 computers each year Discounts begun on computer purchases and free computer repairs 2004 for students

Environmental impact during manufacture and use Manufacture		
Energy consumption		
26%		74%
GHG emissions		
54%		46%
Water consumption		
59%		41%
Abiotic resource consumption		
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PROCUREMENT AND WASTE MANAGEMENT

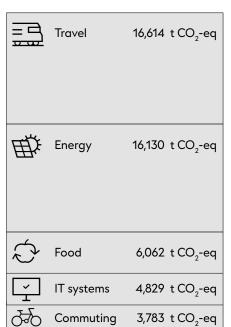


We purchase many products and services every year to conduct our educational, research and innovation activities. Our procurement policy will follow a holistic, circular-economy approach that includes questioning our needs, extending the lifespan of our equipment and recovering our waste. We currently estimate that adding purchased products and services to our measured carbon emissions (excluding IT-, food-, and travel-related emissions, which are already accounted for) would double our carbon footprint.

Our purchasing criteria - whether for selecting suppliers or specific products and services - will systematically incorporate social, environmental, and economic factors and consider the entire life cycle of the product or service in question. This entails forming partnerships with suppliers who share our vision and guiding our community towards sustainable practices.

Total CO₂ balance

Breakdown of EPFL's partial GHG emissions in 2019



Estimation of GHG emissions of other purchases

Other purchases
42 000 t CO ₂ -eq
Approximate value
error of ± 20'000 t

Goals

- → Train the EPFL community on sustainability in the purchasing process
- → Add ambitious sustainability criteria to all our tenders by 2025
- → Extend the lifespan of our research equipment and encourage reuse
- \rightarrow Cut waste by 30% per FTE by 2025
- → Achieve an 80% recycling rate by 2025

Action items

- → Quantify the environmental impact of our purchased products and services
- → Assess our suppliers' environmental and social performance
- → Add sustainability criteria to all our procurement processes and communicate our updated procurement policy to EPFL suppliers and community members
- → Perform regular maintenance on our equipment to extend its lifespan
- → Issue guidelines for sharing, repairing, reusing, and recycling equipment
- → Monitor and improve all waste streams

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2022	First estimates produced of our procurement-related carbon footprint	
2021	Mandatory sustainability checklist introduced for EPFL events, with a focus on waste	
	Sustainability criteria added to 30% of our tenders	
2019	Combustible waste down 40% (by weight) from 2014 levels, despite our growing campus community	
	Waste sorting stations set up in all buildings for recycling paper, glass, PET and aluminum	
2015	Centralized purchasing platform set up	
2014	Centralized waste collection center implemented for recycling over 40 of our waste streams (recycling rate increased from 52% in 2014 to 67% in 2022)	



FINANCES AND SUSTAINABLE PARTNERSHIPS



Our institution receives funding from many different organizations that support our educational programs, research, facilities and events. To make sure this funding is coherent with our values, we plan to develop a clear governance and partnership policy based on demanding environmental, social and governance (ESG) criteria.

Goals

- → Establish a governance system for sustainable investment and financial partnerships, and develop in-house expertise in this area
- → Communicate our ESG criteria to all our financial partners
- \rightarrow Make sure that all funding we receive is in line with these criteria

Action items

- → Develop and implement a clear, transparent policy for sustainable financial partnerships and investments, and establish a process for assessing and updating this policy over time
- → Establish a cross-functional governance system and guidelines for monitoring our third-party funding and investments
- → Set up an ethics committee to assess funding opportunities (e.g., donations, R&D contracts with businesses, sponsorships and research chairs) and the associated environmental, political, social, governance, ethical and military risks
- → Map our existing types of funding and investments



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2022 Sustainability criteria introduced in contracts for businesses located at EPFL Innovation Park

Investment committee tasked with fundamentally reviewing our investment strategy, in collaboration with student associations

Review carried out of our investment portfolio, revealing that less than 1% of our investments are in companies likely to cause environmental damage

2017 Due diligence process introduced to review the reputational and ethical risks associated with philanthropic donations



TRAVEL

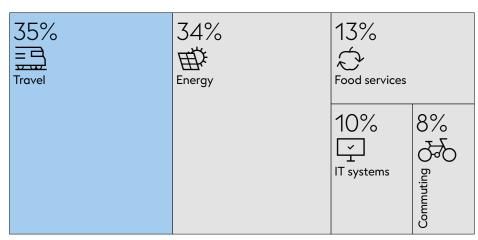


Meeting peers at international events is an essential element of the research process, giving scientists and engineers an opportunity to share their ideas, build professional networks and boost their visibility. By the same token, students can benefit from exchange programs and study trips and internships abroad. Yet travel is a major source of carbon emissions, making up 35% of our carbon footprint here at EPFL. Long-haul flights account for 96% of these travel-related emissions.

Aware that we must change our travel habits in response to the climate crisis, we will introduce measures to encourage our students and scientists and faculty members to reduce their air travel, especially when it comes to long-haul flights.

Total CO₂ balance

Breakdown of EPFL's partial GHG emissions in 2019

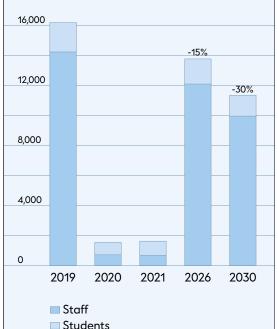


Goals

- → Reduce travel-related CO₂ emissions by more than 30% by 2030 (ref. 2019)
- → Upgrade our videoconferencing systems

CO₂ footprint of travel

t CO₂-eq



Action items

- → Implement our new business and student travel policy, monitor its effects on an annual basis and update it as needed
- → Improve our travel planning and booking process by hiring a central travel agency
- → Encourage EPFL community members to reduce their air travel
- → Set up state-of-the-art videoconferencing rooms
- → Use the SwissTech Convention Center to position EPFL as a center of excellence for hybrid events

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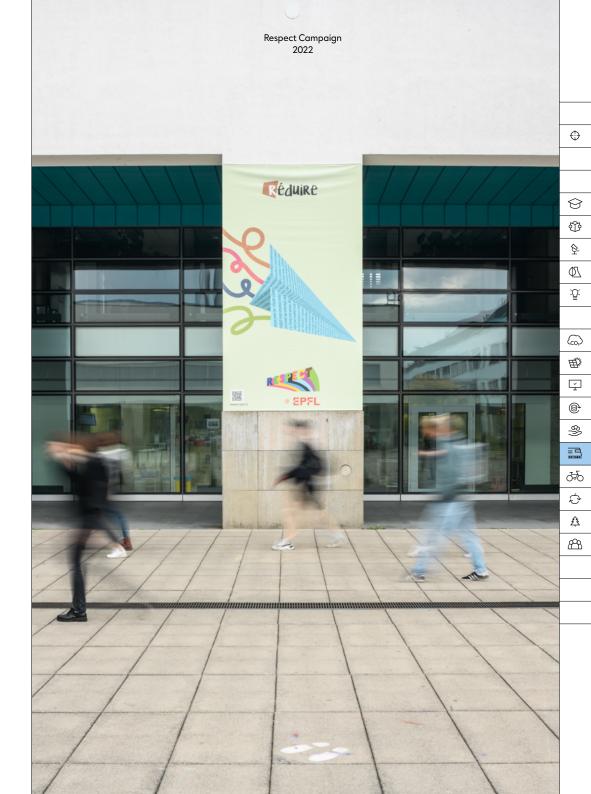
2022

New business and student travel policy introduced

- All bookings must now be made through a single travel agency
- Economy class mandatory up to 6 hours flight time
- Economy class strongly recommended for flights of 6 hours or more
- Train required for most destinations less than 6 hours away
- Direct flights should be used whenever possible
- Carbon-efficient airlines should be used whenever possible
- 25% subsidy introduced on train passes for EPFL staff members

2021	Carbon emissions measured from student travel
2019	Swiss association for sustainable university travel founded jointly with other universities
2018	School of Life Sciences runs a "Travel Less Without Loss" pilot project
2017	Studies of EPFL air-travel habits, destinations and environmental impact found no correlation between research productivity/quality and air travel
2010	Carbon emissions measured from business travel
2005	Half-price train pass introduced for all EPFL staff

Central travel agency set up along with a system to monitor travel



COMMUTING

We actively encourage our students and staff to use public transportation or their bicycles for commuting to and from our campuses. This has bolstered awareness in our community and led to a significant change in habits. However, commuting is still a major source of carbon emissions at EPFL, as many individuals still use personal motor vehicles (such as cars and motorcycles). Such vehicles also have negative health effects due to noise and air pollution and the sedentary lifestyles they encourage.

Total CO₂ balance

Breakdown of EPFL's partial GHG emissions in 2019

35% Travel	34% Energy	13% Food services	
		10% IT systems	Commuting Od %

Goals

- → Cut our remaining commutingrelated carbon emissions by over 30% by 2030, such as by making public transportation, walking and cycling more attractive
- → Set up integrated, continuous and safe walking and cycling paths on campus, with connections to adjacent towns
- → Improve campus accessibility and make it easier for everyone to get around safely and independently
- → Encourage flexible working arrangements and online teaching methods
- → Raise awareness further on physically active, low-carbon forms of transportation

Action items

- → Help improve public transportation lines to our campuses and provide ticket subsidies
- → Expand the walking and cycling paths on and around our campuses
- → Encourage carpooling
- → Introduce a new parking policy to reduce parking at EPFL by 30% by 2030, while respecting individuals' needs
- → Promote the coworking areas at our satellite campuses and expand our online educational programs
- → Develop and implement an action plan for making our campuses more accessible for the disabled
- → Develop and implement an action plan to reduce the environmental impact of goods shipped to EPFL



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New remote-working policy introduced, allowing staff to work up to 40% of the time from home

The modal share of public transportation for the entire EPFL community (students and staff), walking and cycling rose from 62% to 81%, and that of personal motor vehicles fell from 38% to 19%

Parking Mobility fund created to promote public transportation, walking and cycling

Parking policy updated, cutting the number of cars on campus by 15% thanks to flexible systems (like pay-per-use)

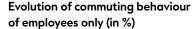
2009 Switzerland's first bike-sharing service set up at EPFL

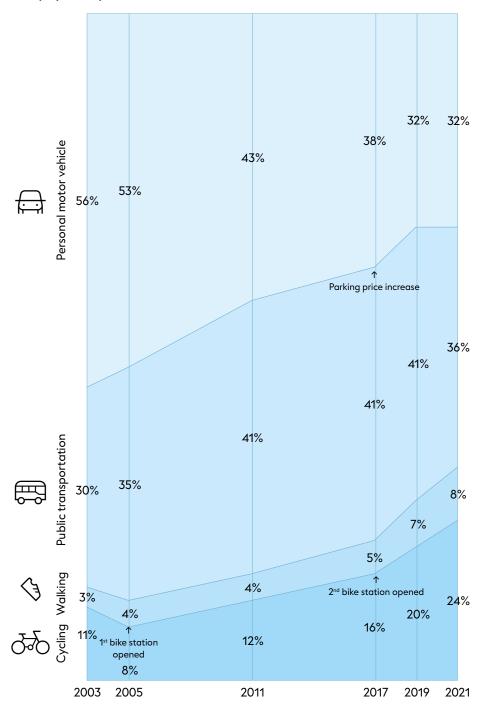
2005 Bike station (Point Vélo) opened on the Lausanne campus, which now repairs 4,000 bikes at-cost and sells 800 new and used bikes per year

First biannual survey carried out to quantify commuting habits and needs and monitor the effects of measures taken

↓ Bike station







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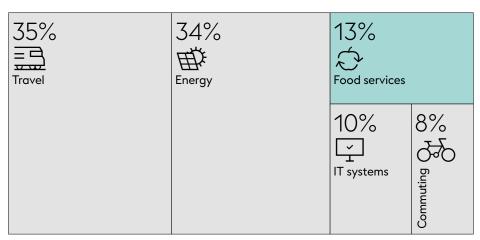
FOOD SERVICES



There are currently around 16,000 people in our community, and the food they consume on campus accounts for about 13% of our total carbon emissions (>6,000 tons CO_2 -eq in 2019). Half of these emissions comes from meat products, even though these products make up less than 15% of our food purchases. We rolled out an ambitious sustainable food-services strategy in 2019 that aims to dramatically change how we eat on campus, emphasizing meals made from fresh, local and seasonal products and dishes that are tasty, nutritionally balanced, affordable (especially for students) and all with the lowest possible environmental impact.

Total CO₂ balance

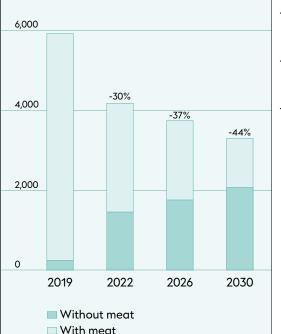
Breakdown of EPFL's partial GHG emissions in 2019



Goals

- → Shrink our food services carbon footprint by 40% by 2030
- → Have all campus restaurants serve meals consisting of 70% local products with 100% fresh seasonal products
- → Increase the percentage of organic food from 6% to 15%
- → Cut back on food waste

Carbon footprint of meals served at EPFL in t CO_2 -eq



Action items

- → Serve 80% vegetarian meals by 2030
- → Slash the amount of red meat used by 80% by 2030

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- → Train chefs on plant-based cuisine that's varied, appealing and nutritionally balanced
- → Promote plant-based dishes
- → Run cooking workshops for students and staff
- → Replace meat and seafood with more sustainable proteins
- → Adapt portion sizes to consumers' needs
- → Measure the climate impact of food served at campus events
- → Use EPFL as a living laboratory to study food habits, such as through the Solutions4Sustainability initiative and student or faculty projects

Food-related carbon emissions reduced from 6.1 to 4.7 kg CO₂-eq per kg 2022 of food purchased (compared to 2019)

2021 Vending machines installed selling local and vegan products

> Student association rolled out a program to provide free meals made from unsold food

Palm oil banned, along with vegetables grown in fossil-fuel-powered greenhouses

System introduced to monitor the environmental impact of food on campus, from purchasing to waste

First 100% vegetarian (and 80% vegan) restaurant opened, now ser-2020 ving 400 meals/day

> All meat sourced from Switzerland and all fish from certified sustainable fisheries

Single-use bottles replaced by water and beverage fountains

Weekly exclusively vegetarian lunch offer introduced

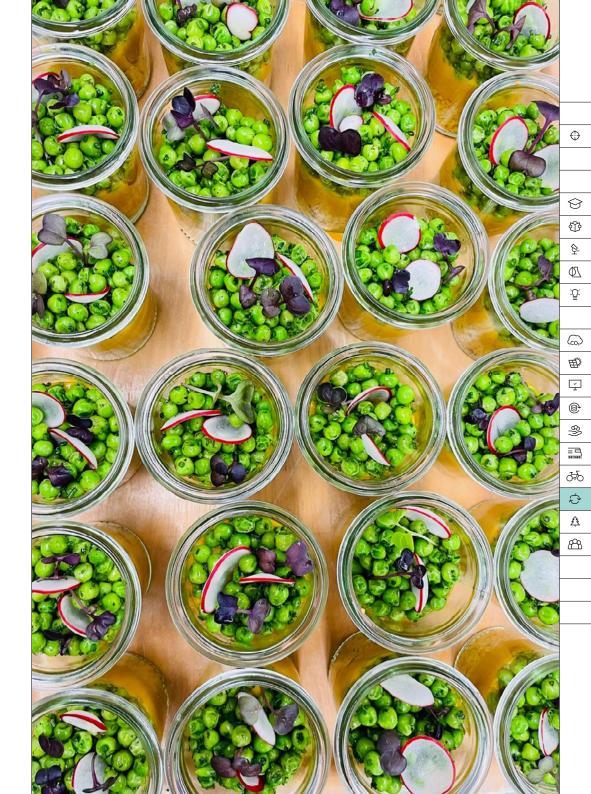
Half of dishes offered on campus are vegetarian

Innovative monitoring system introduced to track the nutritional value 2019 and environmental impact of food on campus, from purchase to waste

EPFL unveils its first sustainable food-services strategy

2018 Act for Change campaign to raise awareness of the environmental impact of food

2017 EPFL becomes the first Swiss university to introduce reusable tableware for take-away meals at all food outlets, made mandatory in 2021



RESILIENT CAMPUSES



Our Lausanne campus was built in the 1970s with architecture and landscaping designs modeled after a small city, where nature and buildings merge together seamlessly. However, as more buildings were built on the campus, the amount of paved-over surface area increased and that of outdoor spaces and vegetation decreased. We now intend to change that trend by leveraging the full potential of our natural surroundings, showcasing our heritage buildings, creating a pleasant living and working environment for our community and making all our campuses resilient to climate change.

Map of heat islands at 2pm during the summer, on the Lausanne campus W/m² V 2018 EPFLLESO

Goals

- → Increase the amount of vegetation and water bodies on our campuses, in order to reduce heat islands and promote biodiversity
- → Convert roads into pedestrian-friendly areas and make all our spaces more attractive
- → Support campus community projects in areas like landscaping, gardening, biodiversity, street furniture and physical fitness

Action items

- → Reduce the amount of motor traffic on our Lausanne campus, making it greener and pedestrian-friendly with versatile, inclusive public spaces (Campus Piéton project)
- → Implement a biodiversity strategy that entails doubling the number of trees to aim for a 30% canopy index by 2030
- → Install green roofs as buildings are renovated, in order to increase biodiversity, reduce heat and improve solar panels' energy efficiency
- → Implement a rainwater management and retention plan to reduce the effects of rainwater on our natural surroundings and promote biodiversity
- → Improve the accessibility of our public spaces, install more sports furniture and provide urban leisure opportunities

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2022	Campus Piéton project launched through a participatory approach
2020	Cooperative farm hosted in a joint EPFL and UNIL initiative to grow a diversified range of organic crops
2019	EPFL and UNIL introduce a joint strategy for transportation, landscaping and public spaces
	50 trees planted for EPFL's 50th anniversary
2002	Herbicides, biocides and chemical fertilizers banned on the Lausanne campus, as certified by Switzerland's Nature & Economy Foundation
1972 1984	Innovative landscape design based on native species, mowing meadows, permeable footpaths and the creation of natural living spaces for native flora and fauna



COMMUNITY AND AWARENESS BUILDING



The transition to a sustainable society goes hand in hand with encouraging behavioral change and creating a climate of respect and well-being – essential elements of any responsible organization. At EPFL, social responsibility is a key pillar of our holistic, long-term approach to sustainability. This includes creating an inclusive, supportive working and learning environment where diversity is valued at both the individual and group levels and where people feel a sense of belonging. We want everyone in our community to not only thrive, but also contribute to our collective effort to respond to societal and environmental challenges.

↓ Respect Campaign 2021



Goals

- → Further incorporate sustainability into our organizational vision and support community involvement on sustainability issues
- → Foster a respect-based culture across our institution where everyone feels appreciated regardless of gender, sexual orientation, origin, religious affiliation, disability and role within the community
- → Increase the percentage of female Bachelor's students, especially in fields where they're significantly underrepresented
- → Substantially increase the number of women in all types of decision-making positions

Action items

- → Issue sustainability guidelines for our community and include sustainability in our onboarding materials
- → Federate the EPFL community members who want to promote sustainability and inclusion.
- → Develop and implement a strategy to address the issues of mental health, well-being and climate anxiety
- → Improve our procedures for filing complaints and preventing psychological and social risks
- → Form a climate- and sustainabilityfocused section of the EPFL Alumni Club

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2022	Trust and Support Network created to help members of our community struggling with psycho-social issues, such as harassment and discrimination
	Online training course on respect and harassment introduced

Mental Health & Well-Being Task Force set up, along with the first EPFL Mental Health Week

First regular Repair Café held

2021	Respect campaigns carried out to promote respect for oneself, for others and for the environment
2 022	1

Harassment A-Z & Promotion of a Culture of Respect Task Force created

Online training course on implicit biases introduced 2021

> La Convergence, club consortium created to federate clubs addressing sustainability and equality (IDM 1987, Unipoly 2002, PlanQueer 2004, Polyquity 2017, Zero Emission Group 2019 and GEHT 2020)

2020 EPFL Alumni Women's Club created

2019	Carbon Conversation workshops held to help people transition to more sustainable lifestyles
2021	·

2019	EPFL community members participate in the work done by the
2017	Climate & Sustainability Task Force
2020	

2018	Equal opportunity policy introduced for hiring faculty members
2017	EPFL issues its first equality action plan
2015 2021	Act for Change awareness campaigns carried out on sustainability
2008	EPFL Sustainability Unit created
2008	EPFL Sustainability Unit created Support provided for student projects on sustainability-related topics
2008	

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↓ Repair Café 2022 (Unipoly)



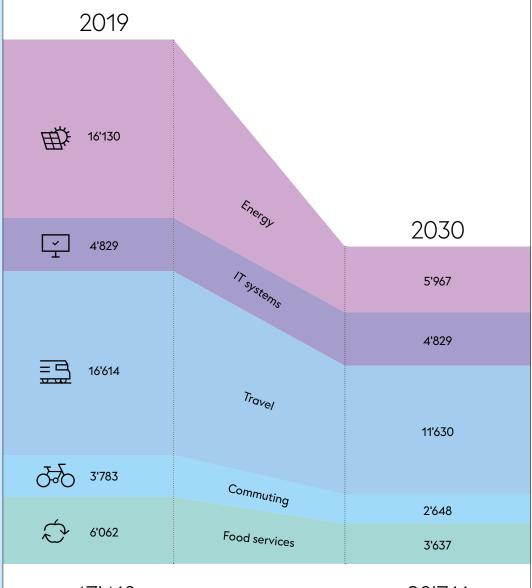
CO₂ emission reduction targets by 2030

Confederation target (mandatory): 50% reduction in energy-related emissions by 2030 compared to 2004

Confederation target (voluntary): 30% reduction in travel-related emissions by 2030 compared to

EPFL objectives: Commuting, Food and IT systems (in progress)

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GOVERNANCE, MONITORING AND REPORTING

Environmental and social responsibility is addressed in our organization through our decision-making processes at various levels of governance. We will implement this Climate & Sustainability Strategy and monitor performance through the following bodies:

- → Upper management (the "Direction"), consisting of the President and the five Vice Presidents (Academic affairs, Innovation, Operations, Finance Responsible Transformation transformation)
- → The Vice Presidency for Responsible Transformation, dedicated to sustainability, including the issues of respect, equality, diversity and inclusion
- → A sustainability unit that coordinates and promotes sustainability efforts across our organization
- → Sustainability officers within individual schools to address the specific needs of their research fields and communities
- → A sustainability sounding board which includes outside experts and stakeholders (to be created in 2023)

This Climate & Sustainability Strategy will be updated regularly based on our experience, input from community members, and discussions with other stakeholders in Switzerland and abroad.

We will also set up the following processes to communicate on this strategy and our achievements:

- → A method for tracking quantitative and qualitative indicators based on the specific field being examined
- ightarrow Annual greenhouse gas emissions reports, broken down by source
- → A process for reporting on the implementation of our Climate & Sustainability Strategy (mid-term and final)

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MILESTONES IN DEVELOPING THIS STRATEGY

2019-2020: Climate & Sustainability Task Force lays groundwork

In 2019 EPFL assembled a task force, consisting of administrative and technical staff, faculty members and students, to develop a climate and sustainability action plan. The Climate & Sustainability Task Force was divided into four working groups to address the following key issues: education, research, innovation and campus operations. Given the growing importance of the digital transformation at EPFL, a fifth working group – on digital responsibility – was subsequently added.

Spring 2020

Working groups (including EPFL experts and members of the student body) were formed to come up with recommendations for specific issues.

Fall 2020

Everyone in our community was invited to provide feedback on proposed operational measures through an online process. We also held several workshops to tap into EPFL collective knowledge and foster the emergence of new ideas. Nearly 700 people took part in the online feedback process and the workshops, even though they were held during the pandemic. This bottom-up process allowed community members to shape the strategy and be empowered to implement it.

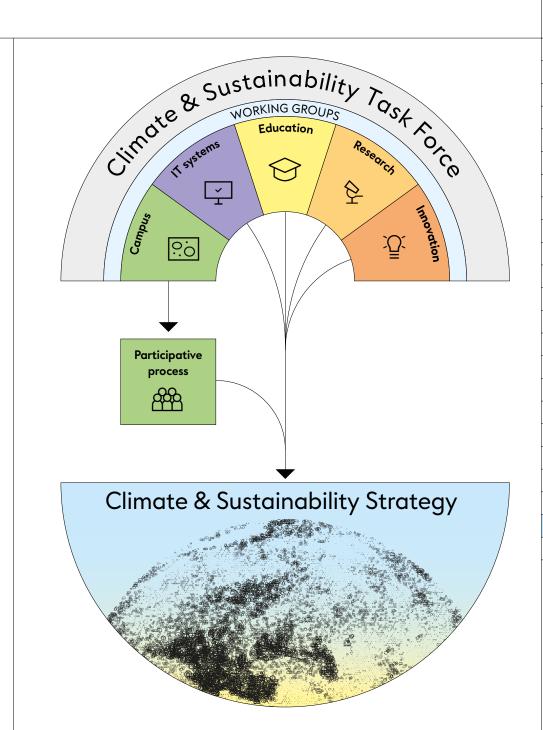
2021-2022: Strategy drafted

The Vice Presidency for Responsible Transformation was created and tasked with developing this Climate & Sustainability Strategy based on the Task Force's work. The Vice Presidency worked closely with all vice presidencies as well as EPFL schools, colleges and student associations to streamline the Task Force's recommendations, further develop and prioritize them.

Measures that could be implemented immediately were done so. For instance, we have already improved our data-collection procedures, defined pathways for reducing our carbon emissions, and set up working groups on education, energy and sustainable finance to suggest specific action items in each of these areas.

2023: Implementation

Implementing this strategy will require a collective effort coupled with ongoing feedback and proactive steps by everyone in our community. Every individual – from students and faculty members to deans and upper management – has a role to play. We are counting on all of you.



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- → The Vice Presidency for Academic Affairs (education and research)
- → The Vice Presidency for Finances
- → The Vice Presidency for Innovation
- → The Vice Presidency for Operations
- → The Vice Presidency for Responsible Transformation

- → EPFL Schools and Colleges
- → Médiacom
- → The SV Sustainability Office
- → The AGEPoly, Unipoly, Zero Emission Group, GEHT, Ingénieur·e·s du Monde, Planqueer and Polyquity student associations

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