

VISION 2030

Ideas for a transition towards a
more sustainable university
at ETH Zurich

Student Sustainability Committee

2023



*student
sustainability
committee*

vseth
Kommission
Verband der
Studierenden
an der ETH

Introduction

The climate crisis and the biodiversity crisis are highly pressing, complex, and interconnected issues for humanity. Our civilization's future depends on our ability to respond effectively to these challenges. With every IPCC and IPBES report (IPCC, 2023) published, it becomes increasingly clear that urgent action is required. Substantial changes are necessary, and the collective efforts of everyone, ranging from governments to individual citizens, from industry to small businesses, from farmers to universities are crucial for shaping a sustainable future.

Universities increasingly recognize their responsibility and potential to contribute to the transformation towards sustainability. By delivering cutting-edge education, they shape the minds of future decision-makers across society. In addition, universities drive scientific progress and provide a secure environment for the growth and development of innovative ideas that lead to the successful launch of new technologies and theories. Consequently, we want ETH Zurich to provide its students with the necessary skills to engage actively in the sustainable transition towards a greenhouse gas-neutral world and to set an example for other societal and political institutions.

As a world-leading university at the forefront of research and innovation, ETH Zurich has immense potential to contribute to the urgent sustainability transition. The institution can do so by improving its own impact and setting an example for other universities and public institutions. As such, ETH Zurich can set new standards for strategic planning in sustainability by including all scopes into their roadmap "ETH Net Zero" and integrating the three dimensions of sustainability - ecology, economy, and society - in all aspects of university life. By developing innovative solutions for a sustainable future and a net zero university model, ETH Zurich can fulfil its responsibilities and play an important role in society (ETH, 2023b).

We, the students, acknowledge ETH Zurich's efforts and the scope of the planned actions, whilst recognizing the room for advancement and improvement in this ongoing process, and want to contribute by sharing our ideas. Therefore, we want sustainability to be one of ETH's core values. In the tradition of past requests of students at ETH, such as the Student Sustainability Committee's (SSC) review towards the sustainability report of ETH 2019/2020 (SSC, 2021), this paper specifies target areas for the sustainable development of ETH Zurich. The purpose of this paper is therefore to:

- Define the opportunities at ETH towards sustainability from a student perspective,
- Serve as a foundation for the SSC's stance towards sustainability at ETH,
- Provide a basis for involving students in decision-making processes regarding sustainability,
- Serve as inspiration for ETH's decision-makers and future students engaging in sustainability.

We recognize that some suggestions of this paper might be difficult to implement. Nevertheless, we believe that ETH Zurich, as a world-leading university at the center of excellence in research and technology, is well-positioned to strive toward a sustainable world and serves as a model for the benefit of all. The bright minds of today and tomorrow come together in this fantastic place of innovation, and we can all contribute to this journey.

Yours sincerely,

The students of ETH Zurich

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Overview

This paper is divided into seven chapters. Every chapter contains our vision of how a sustainable ETH could look like, followed by a description of the status quo as of August 2023. Then, suggested measures and inspiring examples from other universities and institutions are provided.

Chapter 1 focuses on the carbon emissions at ETH and its strategy to reach **Net Zero** by 2030. As ETH is about to define and present an official roadmap, we strive to include the student perspective. In order to ensure comprehensive coverage and to avoid omitting any emission sources, we believe it is essential to include all emission categories within the system boundaries of our net zero targets.

Chapter 2 concentrates on the integration of sustainability into the **education** at ETH. As key decision-makers of the future, today's ETH students will play a critical role in mitigating climate change and preserving biodiversity, both of which are crucial societal changes. Thus, students need to be prepared to use their knowledge and critical thinking to overcome technological, environmental, and socio-economic challenges.

Chapter 3 deals with student **participation**. We believe that student engagement in extra-curricular activities is both beneficial to society and complements the student's scientific skill set with important soft skills. Also, a diverse range of student and staff representation and participation in designing the future of ETH enables everyone to contribute optimally with their strengths towards creating a more sustainable university, whilst increasing satisfaction of all ETH members.

Chapter 4 covers ETH's **food** and catering offers. In 2019, ETH's catering caused almost 5'000 t CO₂ equivalents, which is in the same order of magnitude as the direct emissions on campus (ETH, 2022). A sustainable and healthy diet with a low carbon footprint is one of the simplest ways to make a difference in everyday life. This impact is noteworthy because animal farming, for instance, contributes to 14.5% of global greenhouse gas emissions (Gerber, 2013) and requires substantial amounts of land and water (Willett et al., 2019). Such practices strain the environment and its biodiversity. Furthermore, a quarter of Swiss food system emissions are caused by avoidable food waste (BAFU, 2022), making it a major field of action.

Chapter 5 discusses ETH's **infrastructure**, including buildings, green spaces, and waste management. Buildings and infrastructure account for around 40% of Switzerland's energy consumption, cause considerable material consumption (BAFU, 2023), and are responsible for about 19% of total ETH's GHG emissions (ETH, 2022a). Given that most buildings will still exist in 2050, stringent climate targets in the building sector are a must (Guillaume, 2019). Green spaces on and surrounding buildings have the potential to address the biodiversity crisis by being transformed into biodiversity hotspots and linked to other green spaces (University of Basel, 2019). On campus, they offer additional advantages, such as cooling devices during the summer, water retention, and enhanced wellbeing. Waste reduction and recycling are crucial in limiting resource consumption, CO₂ footprints, and other environmental harms within planetary boundaries (Richardson et al., 2023).

Chapter 6 covers **mobility** challenges at ETH, including flight travel, public transport, cycling, and pedestrian traffic. The former comprises 12.3% of the total emissions at ETH Zurich due to business flights (ETH, 2022a). Limiting flight travels, substituting business travels by telecommunications and fostering sustainable means of transport such as walking, cycling, and public transport, can help to reduce ETH’s mobility emissions, while improving health, well-being, and air quality. The changes should be implemented while considering the social, educational, and innovation issues that universities are facing.

Chapter 7 deals with ETH’s **finances**. To reach net zero across all three scopes, a clear orientation of ETH Zurich’s finance portfolio is essential. We argue against relying solely on Environmental, Social, and Governance (ESG) criteria since they are non-transparent (Berg et al., 2022) and the term lacks any regulatory oversight. Moreover, research has shown that divesting from fossil fuel companies can prompt them to reduce their CO₂ emissions when they face significant withdrawals of investment (Rohleder et al., 2022). By publicly committing to divest from fossil fuels, ETH Zurich can serve as an example for other market actors and public institutions.

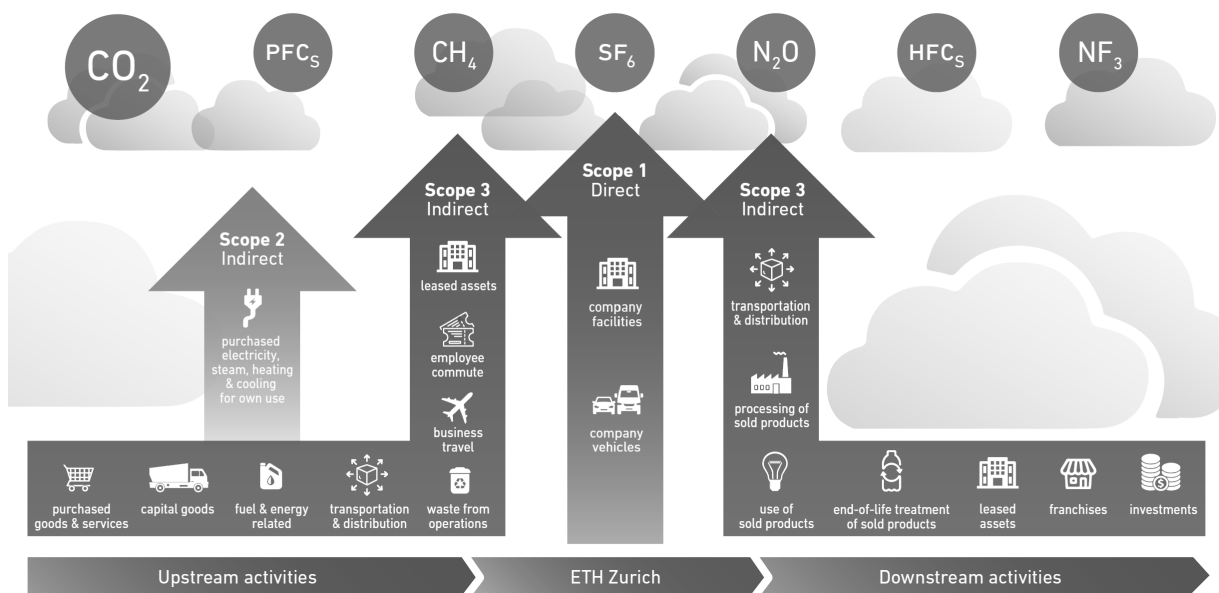


Figure 1: Emission categories based on the Greenhouse Gas Protocol as published in the ETH White Paper „ETH Zurich strives for Net Zero by 2030“ (ETH, 2022a).

Glossary

Sustainability

The UN Brundtland Commission defines sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland Commission, 1987).

Net Zero

The UN defines net zero as: “cutting greenhouse gas emissions to as close to zero as possible, with any remaining emissions re-absorbed from the atmosphere, by oceans and forests for instance” (United Nations, 2023).

Scope 1 emissions

Emissions in the category of scope 1 refer to direct greenhouse gas (GHG) emissions that come from sources that are owned or controlled by a company. This includes emissions from sources like on-site combustion of fossil fuels, emissions from company-owned vehicles, and emissions from chemical production processes.

Scope 2 emissions

Emissions in the category of scope 2 refer to indirect GHG emissions that come from the production of purchased electricity, heat, or steam that a company consumes. This includes emissions from the electricity grid that a company uses to power its operations.

Scope 3 emissions

Emissions in the category of scope 3 refer to all other indirect GHG emissions that are not included in scope 2. This includes emissions from the supply chain, such as emissions from the production of raw materials, transportation of goods, and disposal of waste.

Upstream emissions

Upstream emissions are one side of the scope 3 category and refer to the indirect greenhouse gas (GHG) emissions that are associated with the production and transportation of the goods and services used by an organization.

Downstream emissions

Downstream emissions are one side of the scope 3 category and refer to the indirect greenhouse gas (GHG) emissions that are associated with product’s use or disposal as well as the investment.

Green Office

The Green Offices originated by an initiative of four students from the university of Maastricht in the Netherlands. They collaborated with the university’s administration and teaching staff to create a sustainability hub. A green office is a diverse group consisting of five to eight students along with a minimum of one university staff member. Together with numerous volunteers, they collaborate to initiate an active and evolving sustainability initiative (ESD, 2016).

Net Zero



Our Vision

ETH is completely transparent regarding emissions with full coverage of scope 1, scope 2, and the entire scope 3. By 2030, we reach net zero in all three scopes through a participative process that engages ETH students, professors, teaching staff, academic mid-level staff as well as administrative and technical personnel. Moreover, ETH aims to go beyond Net Zero and establish a culture of regeneration. ETH aims to establish an ideal status through a clear, yet agile reduction plan that enables the flexibility to adjust strategies as necessary and stay on course with set objectives.

Status Quo

ETH committed to reach net zero for its own operations by 2030, with a minimum reduction of 50% in its greenhouse gas (GHG) emissions. Any remaining emissions will be offset through long-term carbon removal measures. Furthermore, in their Net Zero White Paper, ETH has published its 2017 scope 1, 2, and 3 emissions.

However, the scope 3 downstream emissions are only partially included in this report and are difficult to distinguish from upstream emissions. This is because ETH includes waste emissions under the "supply media"

emission category. While some downstream emission categories like franchises or use of sold products are not directly relevant to ETH as it is not a company producing goods, there is a category missing from the Greenhouse Gas Protocol which is 'investments'. This category represents emissions resulting from investments made with ETH funds.

The subsequent chapters provide more detailed information about different categories, our objectives, and specific proposals for transitioning towards a more sustainable ETH.

Suggestions Include

Publishing full scope 3 emissions, including downstream activities such as investments, that are also relevant for ETH's impact.

Extending the reduction target to all categories that fall within scope 3.

Developing a clear, dynamic, and legally **enforceable strategy and roadmap** that includes specific goals, a roadmap with action plans, and covers all three scopes.

Collaborating with stakeholders and exerting pressure on partners to accelerate the transition, particularly reducing indirect emissions.

Providing **opportunities for students** and staff to participate in addressing this interdisciplinary problem together and leveraging the potential of ETH, see section Participation.

Creating a sustainability fund at ETH to promote initiatives, ETH startups, and PhD positions that contribute to sustainability at ETH or in the wider society.

Assessment

Besides the immediate requirement to solve environmental problems, ETH must also handle all sustainability aspects, including social dimensions. This enables ETH to provide better meaningful education, work in conditions that are conducive to the development of everyone, and to further the development of the university. While sustainability is a global concern, assessing the institution's progress and identifying areas for improvement is essential:

QS sustainability ranking:

- ETH ranks as 75th in sustainability in 2023.

Times Higher Education Impact Rankings:

- ETH is currently not ranked for Sustainable Development Goals.

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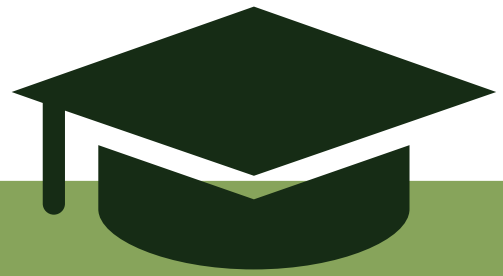
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Education



Our Vision

ETH is not only aiming for Net Zero as an institution, but also educates the generation which will experience and conduct the societal transition to Net Zero during their careers. Awareness of environmental and societal challenges are considered as crucial for the engineers, scientists, and managers of the future. All students learn how their technical expertise can impact society, both positively and negatively. Those students interested in acquiring knowledge about sustainable development have easy access to respective courses, regardless of their study program.

Status Quo

ETH highlights the importance of critical thinking in its "Principles of teaching" and wants graduates to "draw on socially relevant, ethical and sustainability aspects in their activities". Currently, there exist many courses on sustainability topics and study programs dedicated to environmental issues. However, not every student at ETH has access to these courses. In the latest graduate survey performed by the Federal Office for Statistics including an ETH specific questionnaire (ETH, 2023h), 57% of the ETH bachelor's and master's alumni indicated that they did not have the opportunity or

only partially had the opportunity to acquire knowledge about sustainability topics and their relevance to their field of study. Only 23% of the respondents reported having a good level of opportunity to gain practical experience in addressing sustainability issues. Furthermore, the complexity of curricula planning within the departments has led to only slow development of the study programs needed to correct this deficit. The upcoming reform of the academic calendar (PAKETH) provides an opportunity to adapt and improve curricula regulations.

Suggestions Include

Establishing an **ETH-wide strategy for education in sustainability** which asks departments to assess the importance of sustainability to their students and to make appropriate improvements to their programs. Possible actions could include increasing the accessibility and integration of existing courses both within and outside the department, and developing new courses.

Introducing a **minor / master supplement** of about 30 ECTS in Environment and Sustainability open to students from every study program.

Utilizing the PAKETH project and its reforms to create **more opportunities for sustainability courses**, both inside and outside the curricula.

Introducing newly hired staff and new students to the topic during **welcome days** (in progress).

Indicating in the **course catalog** whether a course is related to Sustainable Development Goals (SDGs) (in progress).

Increasing the number of courses concerning sustainability in the **Science in Perspective (SiP) course pool**.

Creating more visibility for **sustainable career paths**.

Inspiring Examples

EPFL Lausanne:

Concrete measures in their Climate and Sustainability Strategy 2030 :

- "Introduce a core sustainability class for all bachelor's students starting in the 2024–2025 academic year" (other universities have similar courses for all study programs, e.g., [University of Helsinki](#) , and [University of Barcelona](#)).
- "Introduce field-specific sustainability classes into all degree programs starting in 2023, in order to train the next generation of experts".

EPFL Lausanne:

- Minor in "Engineering for Sustainability".

MIT:

- Minor in Environment & Sustainability.

University of Oslo:

- Master's supplement in "Environmental Humanities and Sciences" open to all master programs.

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Participation I

Student Engagement



Our Vision

ETH considers extracurricular activities as an essential experience and learning process that students can apply in their future careers. ETH acknowledges and values voluntary work and may even honor it to some extent. Moreover, ETH as an institution can reap the benefits of involving more students in the development of the campus and the school, such as in enhancing their strategy for sustainability.

Status Quo

Many students voluntarily engage for more environmental and social sustainability. In the first sustainability summit organized by SSC in 2022, more than twenty sustainability initiatives were represented. Nevertheless, the time-intensive commitment to such initiatives can conflict with rigid study programs and are scarcely promoted by ETH. Recent developments involve the creation of new platforms entitled "myPath" and "point" functioning as a catalog for extracurricular activities and initiatives at ETH Zurich. Moreover, ETH has launched a new project cal-

led PAKETH (acronym for Exams and Academic Calendar at ETH Zurich), which is looking to reform their academic calendar in the coming years. One of the changes to be implemented by the reform will be to give more free space to students. On the student's side, SSC is initiating a sustainability council called Nachhaltigkeitsgremium des VSETH (NAGETH) with the student associations to support and strengthen exchange, network, collaborations, knowledge transfer as well as offer inspiration and motivation.

Suggestions Include

Promoting **bachelor's** and **master's theses**, as well as **semester projects focusing on sustainability** by collaborating with existing student initiatives through an office at ETH that provides co-supervision, promotion, and budgeting.

Providing incentives to students and lecturers to **encourage extracurricular engagement in social or environmental projects**. This could be done by developing focus projects remunerated with credits, or employing students as teaching or research assistants for sustainability projects at ETH.

Utilizing the PAKETH project and its reforms to create **more opportunities for sustainability engagement**, both inside and outside the curricula.

Creating a **fund for sustainable projects** for all members at ETH, especially for student initiatives. This could be similar to the Innovedum Fund, governed with equal representation of students to finance and kick-start sustainability projects at ETH.

Improving the **overview of extracurricular activities** and projects by using platforms like myPath and point (work in progress) or developing an application for sustainability-related events, projects, and associations.

Inspiring Examples

TU Delft:

- The student organization GreenTU is part of the university's corporate office and actively works on "improving the sustainability performance of TU Delft as a whole". Comparable **green offices** are present Ruhr-University Bochum, University of Konstanz, and University Groningen.

ZHAW:

- The university has a **Sustainable Impact Program** which "promotes outstanding and impactful initiatives by students and employees as well as young entrepreneurship in the field of sustainable development".

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Participation II

Student Representation



Our Vision

ETH embraces a collaborative working culture at all levels. Projects and decisions are conducted collaboratively by staff and students on an eye-to-eye level, and mechanisms are in place, so that everyone at ETH can become an active part of the university. To allow everyone at ETH to contribute optimally, the university is moving towards a hybrid approach. This involves designing top-down initiatives to support and encourage bottom-up projects and development. In this way, everyone's strengths can be utilized to create a socially and environmentally sustainable university, and everyone can be part of the decision-making process.

Status Quo

ETH has several commissions. At least three of these commissions are important for students: the Teaching Commission (Lehrkommission), the Environmental Commission (Umweltkommission) and the Catering Commission (Gastronomiekommission). These commissions have the potential to play an important role to drive for change and more sustainability at ETH. Students are represented in all three of them as a small minority that can be overpowered.

At the departmental level, students' voices are mainly heard in the Teaching Commissions (UK) and the Department Conferences (DK), where department-specific issues are discussed. At this lower level, exchanges are generally collaborative and productive, with some exceptions. The Teaching Commission concerns itself with everything related to teaching, ranging from curricula revisions to ensuring the structural integrity of the de-

gree. However, in practice, the regulations and best practices of Teaching Commissions differ greatly among departments. While some Teaching Commissions include students as an important stakeholder, others make it difficult for students to implement any regulatory changes.

ETH generally fosters a culture of open exchange of ideas where everyone's inputs are heard (Mitsprache), but not necessarily one of co-determination (Mitbestimmung), so students mainly participate in a consultative capacity. Landmark decisions are made by the executive board. Additionally, the organizational structures of ETH are complex, and obtaining a complete overview of all sectors, their decision-making power, and seat distributions can be challenging or sometimes impossible. This creates a barrier for the representation of students.

Suggestions Include

Establishing **mechanisms and structures for student participation** in crucial decision-making processes at ETH that extend beyond study-related matters, in close collaboration with VSETH, its committees, and working groups.

Improving the Teaching Commission (UK) regulations and recognizing its importance as a critical quality assurance tool, while also fostering a culture of discussion between all university groups and prioritizing student input. A revision of the exact reglementary anchoring of Teaching Commissions is needed.

Providing students with **increased co-determination rights**. In areas that have a direct impact on students, it is crucial not only to grant them an advisory role or a minority vote, but to establish a partnership on equal footing.

Creating a **coordination point** to bridge the gap between students and the administration and providing this unit the support necessary to coordinate all initiatives effectively. To promote sustainability, this could be done by expanding the ETHS office, inspired by the Green Offices in universities of Germany or the Netherlands.

Pushing for more **diversity in representation** and decision-making in terms of language, gender, age, and study backgrounds to enable better representation of minorities and underrepresented groups.

Creating a **clear overview**, via VSETH, of all student **participation options**, including decision-making power and seat allocation, enabling students to easily find opportunities to participate in ETH and make it accessible to all students.

Inspiring Example

TU Delft:

- The Green Office at TU Delft and several other Universities create a space where administration and students work together to actively shape their university and make it more sustainable .

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Food



Our Vision

ETH students and employees have access to affordable dining options that prioritize extended sustainability goals, including ecological, social, and health aspects. Meals with the lowest environmental impact, and in particular the lowest carbon footprint (plant-based and vegetarian options), are standard and among the cheapest options. Environmental impacts are transparently assessed and communicated. ETH Zurich actively promotes and supports alternative food concepts and initiatives aimed at reducing waste and increasing the availability of local products.

Status Quo

The canteens, and their daily food offers, play an important role at ETH Zurich. As per G&D (Gastronomie und Detailhandel) regulations, ETH Zurich is committed to providing socially acceptable and reasonably priced food options (ETH, 2010). Private catering partners operate the canteens under operating agreements. The pricing of the 'basic offer' is determined through contracts by making possible contributions to costs with the catering partners. Beyond the scope of what is agreed to be the 'basic offer', the catering partners are unrestricted. The Catering Commission (Gastronomie Kommission) advises the Executive Board on all gastronomy and retail matters (G&R) at ETH Zurich. It plays a

significant role in formulating requirements, developing strategies and plans, and ensuring quality (ETH, 2023b). The commission includes student representatives (VSETH) and academic staff representatives (AVETH), who represent the consumer's perspective. The Sustainable Gastronomy Project (ETH, 2023g), launched in 2018 and updated in 2022, is a first step towards climate-friendly and resource-saving food offerings and a sustainable gastronomy in the long-term. Another project related to this topic was the Veggie Week (ETH, 2022b), organized by ETH Sustainability in September 2022. During that week, most of the canteens at ETH served vegetarian meals only.

Suggestions Include

Setting a **vegan and a vegetarian meal** to be the “basic offers”, keeping them among the cheapest options, and offering them at a fixed price.

Creating one or more “**sustainable meal days**” per week. During these days, every meal offered has a low carbon footprint and meets high environmental standards.

Assessing and communicating transparently about food options with respect to various aspects of sustainability via, for example, a labelling scheme.

Encouraging catering companies to provide **locally sourced and seasonal food**.

Making at least one **plant-based option available daily** at every canteen.

Establishing a **vegan canteen**, where all offered meals are plant based.

Offering active support, infrastructure, and expertise to **establish new sustainable food** concepts and initiatives, also beyond the scope of canteens.

Continuing the efforts to **reduce food waste** in ETH’s catering services.

Inspiring Examples

EPFL:

- One vegetarian day per week is mandatory for all on-campus restaurants (EPFL, 2023).

University of Zurich:

- The canteen Rami 59 has been serving only vegan dishes since 2015 (Vegane Gesellschaft Schweiz, 2019).

University of Zurich:

- For all meals offered at the UZH Irchel canteen the contribution to global warming is analyzed and visibly communicated to the consumers (UZH, 2023).

University of Lucerne:

- At the university canteen all dishes offered are vegan or vegetarian besides an additional offer of meat or fish at the buffet (University of Lucerne, 2023).

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Infrastructure I

Built Infrastructure



Our Vision

ETH's buildings and infrastructure have stringent, ambitious, and mandatory climate and sustainability guidelines, and reach net zero by 2030. The campuses of ETH function as living laboratories for the development of sustainable infrastructure, encompassing building materials, technologies for generating renewable energy, home technologies (like heating and wastewater treatment), and social standards. In researching and educating students about sustainable construction, renewable energy technologies, and the circular economy, ETH reinforces its strong commitment to sustainability.

Status Quo

Buildings and infrastructure account for about 40% of Switzerland's energy consumption, cause considerable material consumption (BAFU, 2023) and account for about 19.2% of ETH's GHG emissions (ETH, 2022a). ETH Zurich has already reduced emissions from built infrastructure by implementing an Energy grid that optimizes and decarbonizes heating and cooling needs. Moreover, ETH Zurich has made significant commitments towards eliminating its reliance on fossil energy sources, as outlined in its ETH Net Zero 2030 White Paper (ETH, 2022a). Furthermore, there are research groups at

ETH devoted to sustainable construction, which provide a selected set of courses ranging from bachelor to CAS level. Examples include the chair of sustainable construction (D-BAUG), or the group for sustainability and technology (D-MTEC). Additionally, ETH Zurich acknowledges the need for living labs on Campus to push transformations in the building sector. For instance, the House of Natural Resources located at campus Höggerberg exhibits practical implementations of sustainable building materials developed by ETH.

Suggestions Include

Considering a broad **definition of sustainability** in all buildings and infrastructure-related projects, including circular economy, social and human requirement, biodiversity, and climate change adaptation.

Creating ambitious, mandatory **sustainability guidelines** covering existing and future buildings focusing on

- Making the CO₂-footprint of planned measures and building materials one of the key factors in project selection
- 100% fossil free energy supply (including heat supply)
- Strong energy consumption reduction (including server infrastructure)
- Maximizing renewable energy generation on campus
- Introducing carbon capture systems on campus where emissions are unavoidable
- Climate change adaptation measures.

Developing mechanisms to make sustainability a **decisive factor in building projects**.

Continuing to foster the activity as a **Living Lab** on both campuses, e.g., by applying sustainable new and recycled construction materials, hubs to recycle construction materials, energy technologies, and living standard technologies (water saving technologies, heat pumps, etc.).

Increasing the number of **positions for research** about sustainable construction, renewable energy technologies, and circular economy as well as the education thereof. This can allow ETH to take over an active role in advancing sustainable infrastructure in and beyond the academic world, for instance its participation in various committees evaluating infrastructure projects.

Inspiring Examples

United Nations:

- Published guidelines for policymakers in the report International Good Practice Principles for Sustainable Infrastructure.

Cambridge University:

- Offers a course in sustainable construction (online) as well as a degree (MPhil) in Engineering for Sustainable Construction.

Atelier Luma:

- research into and conduction of sustainable construction and renovation, e.g., Le Magasin Électrique, which also includes research faculties.

Center for Alternative Technology:

- Offers courses in construction with local materials, sustainable gardening etc.

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Infrastructure II

Green Spaces and Biodiversity



Our Vision

ETH creates more green spaces on both campuses to support biodiversity, aid in adapting to climate change by reducing urban heat island effects and increase attractiveness. In doing so, ETH develops and applies a concept to promote biodiversity across all the properties it manages. Students and other campus user groups engage with biodiversity and carry out related projects. ETH promotes regenerative soil and biodiversity techniques known to fight heat zones and capture greenhouse gases.

Status Quo

With the master plan Campus Höggerberg 2040, ETH Zurich is taking on an exemplary role. The concept includes unsealed areas and green spaces as integral components. In addition, a biodiversity concept for the campus is currently under development. In con-

trast, the Zurich Center university area faces difficult circumstances with limited ability to act due to historical monument protection, complex ownership relationships, and building regulations.

Suggestions Include

Developing a **biodiversity plan** for the Campus Zentrum and any other ETH properties, including ambitious and mandatory goals, a set of measures with a timeline, a communication strategy, and a monitoring of the success.

Including biodiversity measures mandatorily in the **planning phase** of all building projects.

Using the biodiversity strategy and **green spaces to educate** all university members, its gardening and landscape managers and the public on the importance of biodiversity.

Promoting **students' and staff engagement** with biodiversity projects on campus to foster the acceptance of measures, enable campus "inhabitants" to actively design their surroundings and creating potential synergies with study courses.

Taking measures to **reduce dangers for wildlife**, e.g., installing energy saving and insect friendly dimming outdoor lighting, improving the bird-safety of glass facades, etc.

Develop a plan to **minimize urban heat islands** on and around campus as part of a climate change adaptation strategy.

Inspiring Examples

Grün Stadt Zürich (GSZ):

- GSZ and ZHAW published a practical guidebook for the near-natural management of green spaces (Mehr als grün: Praxishandbuch für naturnahe Pflege).

UK Green Building council:

- Published a guide for implementing a green infrastructure by exploring five different case studies (Practical how-to guide: Developing and implementing a green infrastructure strategy).

Universities of Oxford, Edinburgh, and Kingston:

- Published biodiversity plans, either as part of a general sustainability plan or as an individual document:
 - [Sustainability plan](#), subsection biodiversity, University of Oxford
 - [Biodiversity Plan](#), University of Edinburgh
 - [Biodiversity action plan](#) 2020-2024, University of Kingston

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Infrastructure III

Circular University



Our Vision

ETH strives to approach a circular campus by developing and installing a waste system following the maxim of reduce/refuse, reuse, refurbish and recycle, prioritizing the reduction of waste to a minimum. It covers a comprehensive scope of waste types, including domestic waste, food waste from the catering providers, laboratories, and chemical waste as well as wastewater. ETH campuses represent ETH's approach: As living labs for sustainable waste systems and circular economy cutting edge technology is applied on campus. To attain this objective, ETH considers procuring and designing materials that facilitate a circular economy.

Status Quo

ETH Zurich conducts research in disciplines that are integral to the transition to a circular economy and a resource-efficient society, in particular the economics of circularity, plastics and nutrient recycling, to name but a few. Also, ETH has installed PET recycling and offers paper and cardboard recycling in selected locations. Further, ETH aims to reduce plastic in food packaging and offers

reusable take-away boxes (reCIRCLE boxes). However, recycling stations for other waste materials are scarcely distributed across the campus. Moreover, subjects like circular economy, recycling, and sustainable (waste-) water management find little representation in ETH's course catalog and curricular courses are limited to only a few study courses (ETH, 2023d).

Suggestions Include

Including **circular economy** considerations into ETH's **procurement**, i.e., products which can be repaired, reused, given back or rented, and recycled are preferred over alternative products.

Introducing **plastic management** following the principle of reduce, reuse, recycle in ETH's catering, which gradually increases the number of reusable products, phases out plastic, and participates in plastic recycling. Extending these measures to lab materials and other domains of ETH once suitable options become available.

Developing a program for chemicals and lab materials including: **reduction of material consumption and losses**, implementation of a suitable recycling scheme and the development and application of environmentally less harmful substitutes.

Promoting **reduced resource consumption** in general (including water consumption), following the principle of reduce/refuse, reuse, refurbish and recycle.

Striving to reach high levels of **recycling** to curb the environment impact through appropriate measures such as expanding ETH's recycling system by setting up uniform and accessible recycling stations across the campus in dense spacing, complemented by a small campaign educating about the new waste management system, the Swiss recycling systems and explaining how to sort correctly.

Enhancing ETH's **research and development** activities in circular economy design, sustainable waste management, and related education.

Inspiring Examples

University of Lund:

- Guide video explaining the recycling system in Sweden (Lund University, 2022).

Bern University of Applied Sciences:

- Offers a master's degree Circular Innovation and Sustainability.

Ellen MacArthur Foundation:

- Lists universities with study programs, research group or activities related to circular economy.

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Mobility I

Flight Emission Reduction



Our Vision

ETH finds the balance between effectively reducing its air travel emissions while at the same time being able to maintain the global research networks for all its members. A policy guideline for sustainable travel enables and enforces members of ETH to choose more sustainable solutions and to achieve the ETH-wide goal of significantly reducing the carbon footprint in air travel. Air travel is only used when necessary for the school's and its members' development, and when no alternative means of transportation is available.

Status Quo

Air travel is among the largest sources of GHG at ETH. In 2019, 15'100t CO₂ equivalents were caused by flying at ETH (ETH Sustainability, 2023). Out of these, 12.6% came from short distance flights (<1500 km). During the CoViD-19 pandemic, the flight emissions dropped significantly, yet the numbers are now strongly increasing again. As part of the Net Zero 2030 strategy, ETH includes air travel emissions in the 50% reduction goal next to scope 1 and 2 (ETH, 2022a).

To promote sustainable travel, ETH launched the air travel project where the community committed to reduce the air travel

emissions by 15% by 2025. In the document ETH Zurich Regulations Concerning Business Expenses (ETH, 2021), it is stated that business trips, where the destination is reachable within 8h by train or bus, should not be made by plane whenever possible. Additionally, ETH developed several "Travel Decision Tools" like routeRANK (ETH, 2023f) which compare modes of transport with respect to travel time and GHG emissions for different destinations. Furthermore, several departments have introduced a carbon tax on business flights ranging from 100 to 800 CHF per ton of CO₂. None of these measures are mandatory at the ETH level.

Suggestions Include

Introducing **business travel regulations** which only allow to fly if the following three requirements are fulfilled:

- The destination is not reachable by train or bus within 9 hours,
- The destination is more than 800km away from Zurich,
- The stay lasts 72 hours at least.

Reducing flights to the minimum for flights longer than 1500km - which account for 88% of all ETH flight emissions - by planning longer trips only when unavoidable, making use of virtual meetings, and combining long-distance trips.

Introducing an ETH wide **carbon tax** to internalize externalities of flight emissions. The money of the tax could be used for:

- A travel fund that subsidizes sustainable modes of transportation,
- A sustainability fund which supports sustainability projects at ETH,
- Compensating the emissions by purchasing carbon removal.

Making **alternative means of transportation** more attractive, for instance by re-numerating work on the train during business travel.

Only allowing for economy class **reimbursement**, as it has a lower carbon footprint than business class flights.

Influencing actively the **scheduling of conferences** and events in similar areas, so that they can be combined, and unnecessary flights avoided.

Inspiring Examples

University of Groningen:

- Staff members must travel by train (instead of by plane) for all foreign business trips booked as from 1 January 2023, if the destination is less than 800 km from Groningen (or another point of departure), and/or the journey time is less than 9h by train.

University of Basel:

- Journeys to destinations which can be reached within 8h by train must be done by train, unless there is a special exception approved by their supervisor.
- Flight guidelines apply for destinations that can only be reached by air, such as bundling several activities if possible, avoiding large delegations and if possible, taking direct flights or the train to an airport (e.g. Zurich to Paris).

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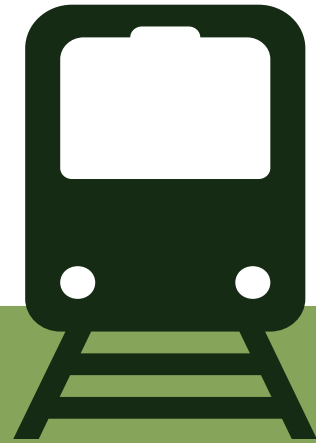
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Mobility II

Public Transport



Our Vision

ETH promotes public transport and keeps motorized private transport to a minimum. Low-cost and barrier-free access to high quality public transportation is ensured for all students and staff. Car sharing and carpooling opportunities are available for purposes where public transport is not applicable.

Status Quo

Around 75% of ETH students and employees commute to and between ETH sites by public transport (ETH, 2023a), which leads to modest emissions. For their part, students rely heavily on access to public transport since the combination of presence courses and the lack of close housing opportunities means that a majority needs to travel to ETH. Hence, students are subject to imposed pricing policies. An example is the student GA which was canceled in 2020 (PHZH, 2020). This means that there currently is no price reduction for students above an age of 26 neither for national (SBB) nor for local public transport (ZVV) (SBB, 2023; ZVV, 2023). However, for young adults until the age of 25 there is a significant reduction for ZVV subscriptions and the GA of SBB.

ETH Zurich already promotes the use of public transport by entitling staff with a level of employment of at least 50% to a free Half-Fare travelcard or a 25% contribution towards the cost of a GA travelcard (ETH, 2023e). On the operational side, ETH Zurich replaced the ETH-Link buses with electrical vehicles ensuring the important connectivity between the two campuses fossil free. Similarly, the ZVV plans to electrify the bus lines 69 and 80 which provide access to Campus Höggerberg (Stadt Zürich, 2023). Furthermore, ETH has cooperative agreements with car sharing partners and a carpooling program called PSI Link, which provides a direct point-to-point connection between ETH Campus Höggerberg and PSI in Villigen (ETH, 2023i).

Suggestions Include

Making **public transport more attractive**, specifically to ETH members currently commuting by car.

Advocating for a **reduced ZVV subscription** for all students.

Connecting with other Swiss universities and colleges to advocate for **reduced local and national public transport** subscriptions for all students.

Optimizing **ETH link schedule** according to the needs of students and staff. In particular, prolonging the service in the evenings and on weekends.

Designing public transportation facilities **barrier-free and easily accessible** all-around ETH.

Evaluating **car sharing and carpooling** options and adapting them to meet demand and reduce carbon emissions.

Inspiring Examples

University of Hamburg:

- Students enrolled at University of Hamburg and at many other German universities receive a semester public transport pass (Semesterticket) covering the local public transport services upon paying their semester contribution.

Luxembourg:

- Free public transport in the country.

France (Corsica):

- The local government offers public transportation between the university and the student's place of residence.

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Mobility III

Cycling and Pedestrians



Our Vision

ETH is a place where many students cycle on safe and fast bike lanes, park their bicycles in sufficient, protected, and convenient bike parking spaces. ETH employees that formerly commuted by car switched to bicycles as it became more convenient and there are plenty of (e-)Bike-sharing opportunities and charging stations. ETH members benefit from better physical health due to daily exercise and have an affordable and fast way of commuting to ETH. Furthermore, they contribute to reduced carbon emissions and less air and noise pollution while relieving traffic and public transport during rush hours. Additionally, walking to ETH, especially from the main station to Zentrum and across the street between the buildings of Campus Zentrum is safe and enjoyable.

Status Quo

Many students commute to ETH by bicycle or on foot. ETH provides various structures to enable bicycle traffic like bicycle parking lots, bicycle pumps, inexpensive sharing offers like Urban Connect, PubliBike or Team E-Bikes. Additionally, there are rentable bike storage boxes on Campus Höggerberg (ETH, 2023c). These structures are important, but they must be continuously adapted to shifting demand: Bicycle parking becomes more and more used in popular locations like the Polyterrasse as the number of students is ever-increasing. Moreover, the number of e-bikes is growing, but there are just two charging stations overall (ETH, 2023c). The student-led initiative VELOVE is an essential player for the promotion of cycling: With their semi-annual bicycle market

(Velobörse), a well-frequented volunteer-run bicycle repair shop, rentals and events, they make cycling at ETH more accessible, sustainable and affordable. However, they have not yet managed to obtain a new suitable room in an ETH building on Höggerberg for the repair shop. Consequently, the future of their service is not secured (Steiner, 2023)

One of the greatest issues is the security of the commute: Many streets in Zurich are not safe for cyclists (Pro Velo Schweiz, 2021), which compels many students to use public transport instead. Insufficient road safety is also a burden for pedestrians, especially in Zentrum where students regularly must cross the busy roads between the buildings.

Suggestions Include

Providing more **bike parking** on campus, including safe and covered parking and more e-bike charging stations based on demand-analysis. Bike parking at important arrival points like Central / Hirschengraben could be considered as well.

Integrating **VELOVE** into ETH mobility offers by supporting them financially and by providing them a rent-free location on Höggerberg, considering their demands as representatives of cycling students. Possibly extend their offerings to include more services typically offered by bike shops.

Increasing the **safety of commuting** to ETH by bicycle by providing a map with safe bicycle routes in Zurich from different quarters to both campuses and relevant points of interest (digital and on signs next to bicycle parking).

Collaborating with other institutions for more political power and synergies for **slow-mobility infrastructure projects** on and around campus (e.g., HGZZ).

Improving **pedestrian paths to ETH** - especially from HB to Zentrum – and within the campus by politically pushing for safer, more accessible, and more pleasant pedestrian infrastructure.

Providing **showers and lockers** for people commuting by bicycle.

Encouraging staff and students to bike by offering **financial and social incentives**.

Providing exchange students and visiting members with the **opportunity to rent bicycles** for shorter or longer periods of time and continuing reduced annual subscription for **Züri Velo** (PubliBike)

Providing **uphill bicycle transportation** from Central to HG, e.g., on the side of the planned Polysteig and becoming a visionary for modern mobility strategies.

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Inspiring Examples

EPFL:

- Students can buy and repair bicycles in the Point Vélo Bicycle Repair Shop on the university campus.
- Over 70% of bicycle racks are covered.

Lausanne:

- A bicycle map shows cyclists which roads are suitable for them, including steep slopes, safe traffic areas, and other points of interest for cyclists.

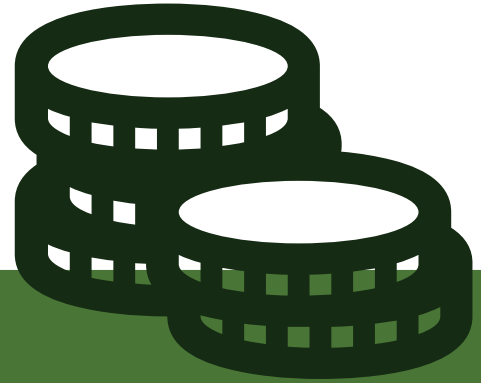
Trondheim:

- A bicycle escalator allows cyclists to get uphill without effort.

Ile-de-France:

- A mileage allowance (up to 200 euros) for all employees cycling to work.

Finance



Our Vision

ETH and the ETH Foundation publicly commit to clear and concrete goals for sustainable investments. They recognize that ESG (Environmental, Social and Governance) criteria are missing a commonly accepted meaning (Berg et al., 2022). ETH and the ETH Foundation do not invest in fossil fuel companies and further measure and publish their investments' CO₂-footprint. They use their shareholder voting rights to direct companies they hold shares from towards more sustainable development. They transparently communicate their progress and efforts in all three areas and publish annual reports.

Status Quo

In the year 2022, ETH Zurich had a total yield of approximately CHF 1800 million, 74% of which came from the federal government (ETH, 2022b). These public funds remain within the Federal Finance Administration. Merely, third-party funds, which are not utilized immediately, may be invested on the market. In 2022, this comprised around 300 million CHF. The investment is accustomed by

three asset managers, which are obliged to an investment strategy based on four pillars: return, risk, cost efficiency and sustainability. ETH uses Environmental Social and Governance (ESG) criteria for their investments. Further, the ETH Foundation invests in many ETH startups of which some are focusing on sustainability topics.

Suggestions Include

Formulating **investment guidelines** and publishing them.

Asking **mandates to divest** from the companies suggested by the fossil free campaign, and maintained by FFI Solutions, for example by switching to products compatible with this goal.

Favoring products where the companies listed by the fossil free campaign are added to the exclusion list, which currently contains the recommended companies given by the Swiss Association for Responsible Investment (SVVK-ASIR).

Collaborating with SNB to **invest** the ETH money at SNB in more sustainable ways.

Creating a **sustainability fund** to finance the projects and initiatives needed for a sustainable transition. This includes a strategy for how to make this money available.

As long as mandates have not yet divested:

Demanding mandates to use their **voter's rights** to push companies towards sustainability.

Aiming to move to **funds with engagement** - this similarly allows mandates to positively influence corporate direction.

Publishing the mandates' efforts, including the portfolios' CO2 footprint and whether they made use of their voter's rights, in a yearly CO2 reporting.

Inspiring Examples

University of Oxford:

- Decision to divest from the fossil fuel industry in 2020.

Harvard University:

- Decision to divest from the fossil fuel industry in 2021.

Divestment Database:

- Stand.earth is maintaining the Global Divestment Commitments Database, where institutions, universities and others, that have committed to divest from coal and tar sands are listed.

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