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SUSTAINABILITY STRATEGY

TECHNISCHE UNIVERSITÄT BERGAKADEMIE FREIBERG

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PREAMBLE

The Technische Universität Bergakademie Freiberg is a national resource university and the world's oldest university of mining science. Since its establishment in 1765, the university's teaching and research have focused on the entire value chain, from exploration and extraction to processing and recycling.

The careful and responsible use of resources, as well as sustainability in general, have now reached an unprecedented level of importance. The sustainable development of our society is considered one of the most important tasks of our time. As integral parts of social life and research and educational institutions, universities have a central role to play in this endeavour.¹ The Technische Universität Bergakademie Freiberg is taking on this task and facing the challenges it presents. Consequently, the university is committed to active, sustainable development at all levels, taking social, economic, and ecological aspects into account. TU Bergakademie Freiberg assumes responsibility for sustainable resource management through excellence in research and teaching. Together with partners, the university achieves forward-looking results, trains highly qualified young professionals, and actively participates in the transfer of knowledge between theory and practice.

¹ See also the Saxony State Rectors' Conference: Climate Protection and Sustainability, Position Paper dated August 5, 2022 (2022), p. 1f., https://www.lrk-sachsen.de/wp-content/uploads/2022/08/2022_08_05_LRK_Positionspapier_Nachhaltigkeit_end.pdf



I. GUIDING PRINCIPLES

The idea of sustainability existed for centuries before it was rediscovered and revived in the late 20th century as a central challenge and concept guiding action. The United Nations Brundtland Report², which defined sustainability as follows, remains of fundamental importance to this day:

“meet[ing] the needs of the present without compromising the ability of future generations to meet their own needs”

The understanding of sustainability, as well as this and other definitions based on it, has, due to social change, changed and evolved several times since Hans Carl von Carlowitz's original idea of sustainability.³ Against this backdrop, the sustainability strategy of the Technische Universität Bergakademie Freiberg is based on the comprehensive understanding of sustainability formulated by the United Nations in the Sustainable Development Goals (SDGs) based on the 1987 Brundtland Report:⁴

SUSTAINABLE DEVELOPMENT GOALS



SDGs of United Nations⁵

For the United Nations itself, the SDGs are a ...

“universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity”

This call to action manifested in the SDGs is not binding law as such. However, standard setters are increasingly incorporating the sustainability considerations formulated in the 17 goals into the rules they set.

The profound processes of change inspired by the United Nations SDGs are now affecting all individuals and organizations in the 2020s, especially universities. In addition, the finite nature of resources raises the question of their sustainable use. As a resource university with a history spanning over 250 years and a long-standing commitment to sustainability, we view the sustainable nature of our actions as an expression of our collective responsibility for a world where justice, freedom, nature conservation, resource protection and the other SDGs play a more significant role.

As an educational and research institution, we at the Technische Universität Bergakademie Freiberg understand sustainable development as a process of change affecting society as a whole. We are actively involved in this process, and four areas of action are of particular importance to us:

- **Research:** We conduct research into sustainable solutions for the challenges facing future generations.
- **Teaching:** We educate the people who will shape a sustainable society in the future.
- **Transfer:** We share sustainability-related knowledge by engaging in ongoing dialogue with society, business, culture and politics.
- **Operation:** We design sustainable structures and processes, considering components such as employee performance, consumption of raw materials and energy from a sustainability perspective.

Our sustainability strategy addresses the aforementioned four areas of action simultaneously. It should be understood as an overarching plan on the basis of which specific goals in these areas are to be achieved. Chapter II provides a more detailed explanation of the main and sub-goals we have set for the four areas of action, how they can be operationalized, and how their achievement can be measured. As the implementation or feasibility of a plan is influenced by countless variables, such a strategy is subject to continuous critical review and redesign to ensure it remains goal-oriented. We therefore regularly review our overall strategy, the goals formulated therein, and the measures aimed at achieving them.

² See also United Nations: Our Common Future – Report of the World Commission on Environment and Development, New York 1987, regarding the following quote S. 15, 37.

³ See also illustrative Fischer, D./Haucke, F./Sundermann, A.: What does the media mean by ‘sustainability’ or ‘sustainable development’? An empirical analysis of sustainability terminology in German newspapers over two decades, in: Sustainable Development, Vol. 25 (2017), No. 6, pp. 610-624; Ruggiero, C. A.: Sustainability and sustainable development: A review of principles and definitions, in: Science of the Total Environment, Vol. 786 (2021), art. 147481.

⁴ See also <https://www.undp.org/sustainable-development-goals> (Abruf: 18.11.2025). With direct reference to the SDGs see also Saxony State Rectors' Conference: Climate Protection and Sustainability, Position Paper dated August 5, 2022, p. 3f.

⁵ Source: <https://www.climatepartner.com/en/knowledge/glossary/sustainable-development-goals-sdgs> (retrieval: 18.11.2025).

II. AREAS OF ACTION AND DEVELOPMENT GOALS

At the Technische Universität Bergakademie Freiberg, natural science, engineering, and economics approaches are developed to address key societal challenges relating to the sustainable use of resources. The university's profile combines the interrelated fields of **GEO, MATERIAL, ENERGY, and ENVIRONMENT** in research, teaching, and knowledge transfer, and is consistently geared towards future requirements.

According to the German Rectors' Conference, developing and implementing a sustainability strategy at a university requires all research and teaching approaches to consider the functioning of the scientific system and the fundamental right to academic freedom.⁶

1. Research: First-class research for sustainable resource use

We conduct research to generate insights and innovations that enable us to solve present-day challenges, not only for the benefit of the current generation, but also for future generations.

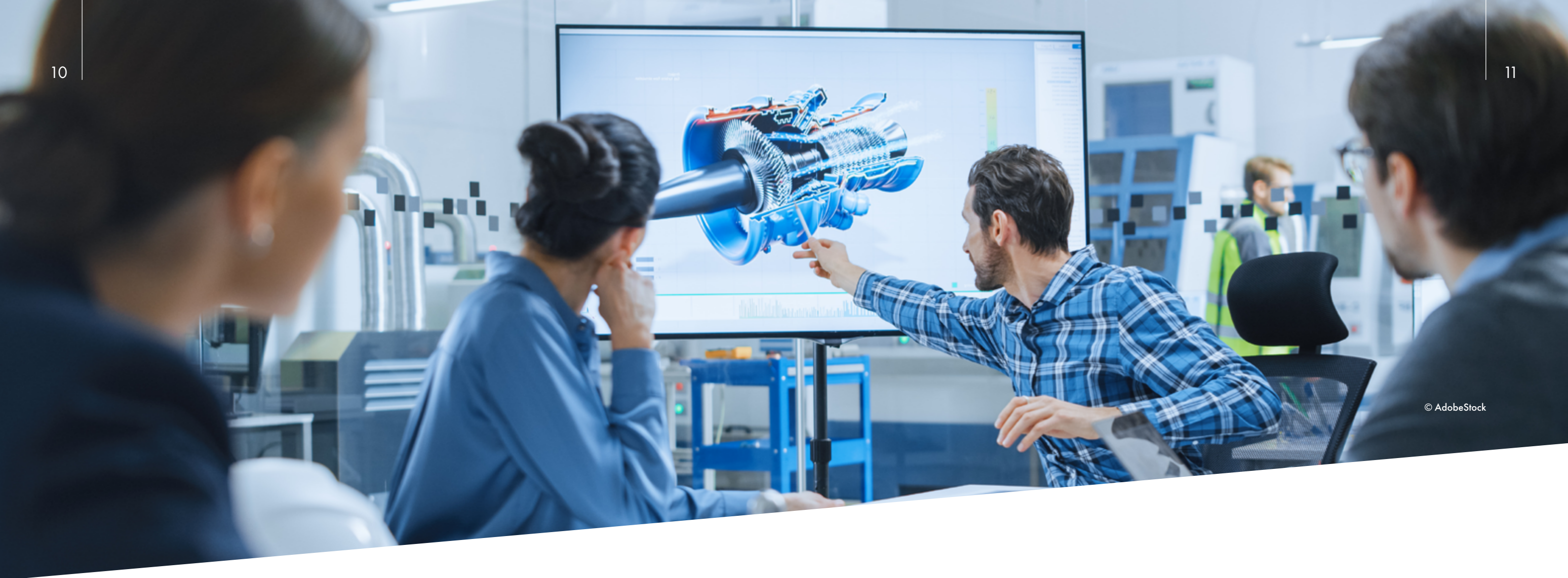
Humanitarian responsibility, environmental protection, climate protection, the efficient use of scarce raw materials and sustainable energy provision are key motivators for our research. Many of the innovations resulting from our research are helping to bring us closer worldwide to closing energy and material cycles. The Technische Universität Bergakademie Freiberg's traditional commitment to quality and excellent research is expanding to include increased sustainability, while maintaining the freedom of research guaranteed by the German constitution.

With its range of subjects in the natural sciences, engineering, and economics and the associated scientific diversity, the Technische Universität Bergakademie Freiberg offers ideal conditions for conducting sustainability research as an interdisciplinary and transdisciplinary cross-cutting task. All disciplines are relevant to sustainability and should address it specifically. This approach recognizes sustainability not only as a subject in its own right, but also as a decision-making criterion for our research across all scientific disciplines, faculties, institutions, and projects. This is particularly important in ecological terms, but also in a social and regulatory terms. Our university's numerous sustainability-related research projects, publications, and conferences reflect the extent to which we already conduct research on sustainability issues.

Information about ongoing and completed research projects in the field of sustainability, along with their results, is compiled. This provides an overview for communication purposes, such as presenting our university's sustainability research to the public, and promotes networking among researchers at the Technische Universität Bergakademie Freiberg. Due to the interdisciplinary and complex nature of sustainability, cooperation across disciplines and faculties is particularly welcome. The same applies to research whose findings can be translated into recommendations for action related to sustainability. To motivate researchers without restricting their constitutionally enshrined freedom, research-related incentive systems should be supplemented accordingly. Additionally, existing information structures should be expanded to continuously and comprehensively record all sustainability-related research projects being carried out at our university.

⁶ See the recommendation of the 25th General Assembly of the HRK on 6 November 2018 in Lüneburg, 'For a culture of sustainability', esp. p. 5, https://www.hrk.de/fileadmin/redaktion/hrk/02-Dokumente/02-01-Beschluesse/HRK_MV_Empfehlung_Nachhaltigkeit_06112018.pdf (accessed: 18 November 2025).





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2. Teaching: excellent knowledge transfer – continuously expanded to include sustainability aspects

In our teaching, we convey the concept of sustainability to students from various academic disciplines as a comprehensive, current and relevant idea, in order to prepare them to act rationally, fairly and with foresight and prudence in their future careers and towards others and the environment.

As with research, the Technische Universität Bergakademie Freiberg is also committed to the principle of academic freedom in teaching. Our traditional and active commitment to excellence in knowledge transfer will be reinforced by sustainability aspects, particularly by focusing on the principle of ESD (Education for Sustainable Development), which is anchored in the fourth Sustainable Development Goal (SDG) of the United Nations. Consequently, we are striving not only for a higher proportion of courses with a clear sustainability focus that are suitable for students with different levels of prior knowledge and interests, but also for: Through interactive, research-based, independent teaching and learning, we empower students to make sustainable decisions that take the SDGs into account, thereby contributing to the economy and society. We enable students to engage with sustainability and its societal challenges in a subject-specific and interdisciplinary manner. Teachers are encouraged to incorporate sustainability-related elements into their courses.

This connection can be strengthened further through individual sustainability-related events, such as guest lectures, semester-long courses, and degree programs. Teaching-oriented publications with a sustainability focus serve as a bridge to research. Like researchers, teachers are motivated by the addition of sustainability-related criteria to existing evaluation and incentive systems.

In addition, the Technische Universität Bergakademie Freiberg is characterized by a cosmopolitan atmosphere and respectful interactions among students and faculty. The university has a strong international reputation, particularly in the energy and raw materials sector. All students benefit from our scientists' global network, especially those who gain experience abroad through exchange programs, practical semesters, or international degree programs.

3. Transfer: communicating sustainability to our stakeholders

A continuous, mutual exchange between the university and society, business, culture, and politics that takes social, ecological, and economic factors into account serves the interests of both parties. Sustainability issues are integrated in a targeted manner. As an educational institution, the university multiplies its impact on society by sharing its knowledge.

In addition to teaching and research, knowledge transfer is one of our university's core tasks and competencies. This involves the exchange of knowledge, ideas, and experiences, and all relationships between the university and its stakeholders, especially those in business, politics, and society.

Our university recognizes its unique role in sharing the outcomes of teaching and research, as well as its responsibility to society. Our teaching and research work is practical, particularly in improving the achievement of the SDGs. In this way, the university actively contributes to overcoming current challenges, such as the energy transition and the responsible use of critical resources.

At the Technische Universität Bergakademie Freiberg, the transfer of knowledge, opportunities for action, and technologies as a bridge between the university and society is a high priority. Successful transfer can be a decisive driver of scientific, economic, political, and social developments. As with research and teaching, sustainability is a central principle in all types of transfer, including technology development, consulting, cooperation projects, information and training events, and the establishment of new companies.

4. Operations: Making our organization more sustainable

For the university as an organization, sustainability means deliberately aligning processes, structures, and rules to reduce our ecological footprint, ensure fairness in terms of equality, diversity, and inclusion, and establish effective governance. As demonstrated by the United Nations' Sustainable Development Goal 4, education plays a central role in sustainable development. On the one hand, education empowers people to actively, independently, and responsibly shape our world. On the other hand, education integrates sustainable development issues in a concrete manner.

In order to fulfil its role as a model for sustainability-oriented action, the university must create long-term, effective framework conditions for its operations, especially with regard to students and employees. The primary goals of internal processes and structures must be carefully balanced with ecological, social, and governance concerns. Although individual contributions may seem small, every contribution counts. Where we see potential beyond our scope, we encourage those responsible to take a more sustainable approach.

University management

In line with this strategy, the university supports the implementation of sustainability activities by providing resources and establishing responsibilities. The concept of sustainability has been anchored at the university-wide level by the university management, and it already shapes its decisions and actions.

Environmental sustainability

All employees are required to perform their duties in a way that conserves resources as much as possible. Everyone should constantly question the processes associated with university operations, such as mobility, material procurement, heating, ventilation, lighting, and waste disposal. Reducing emissions (including greenhouse gases, noise, light, and odours) and consumption (including electricity, water, and consumables) is a guiding principle of our actions.

Social sustainability

University processes and structures should serve their intended purpose while considering social concerns as much as possible. Our goal is to improve the quality of life of those associated with us without compromising the quality of life of future generations. In this context, we focus on providing our employees with fair working conditions and our students with fair study conditions, granting them appropriate rights of co-determination and participation. As an educational institution, we are inherently committed to the common good, which we emphasize through targeted engagement in favour of a democratic, free, and socially balanced society.

Supervisory structural sustainability

The university is continuously developing its governance structures to promote the ethical management of its organizational units. The university council regularly discusses sustainability, which is firmly anchored in its agenda. The university management is responsible for further developing the sustainability strategy as an ongoing process of updating and improvement and for ensuring its implementation. The issue of sustainability is institutionalized at the management level and is visible internally and externally. This ensures that sustainability is consistently considered a strategic, cross-cutting issue and promoted in university-wide processes and conceptual developments. Faculty management teams are aware of this issue and are encouraged to emphasize ecological, social, and regulatory sustainability.

Communication

We communicate the sustainability of our actions to our stakeholders in a targeted manner. This begins with our legally mandated reporting obligations. In the spirit of voluntary publicity, we regularly inform our stakeholders—especially our students and employees—about our progress in sustainability-oriented research, teaching, and university administration. To continuously improve our achievement of environmental, social, and regulatory sustainability goals, we provide appropriate continuing education opportunities for our employees.





III. CONCLUDING REMARKS

Since Hans Carl von Carlowitz first coined the term „sustainability,“ the Technische Universität Bergakademie Freiberg has been closely associated with the challenge of sustainable action. The demand for ecologically, socially, and structurally sustainable action has taken on overwhelming significance in the 21st century. This demand shapes not only the research, teaching, and transfer services of our university, but also decisions about necessary operations.

“It must be recognized that joint efforts are time-critical and cost-intensive, but also inevitable”⁷

Our sustainability strategy sets out an overarching plan that will serve as a benchmark and guideline. Since universities, such as the Technische Universität Bergakademie Freiberg, operate within an institutional framework and a rapidly changing environment, achieving a higher degree of sustainability requires constant questioning and adjustment of our actions, including this sustainability strategy.

⁷ Saxony State Rectors' Conference: Climate Protection and Sustainability, Position Paper dated 5 August 2022, p. 4.

IMPRINT

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