BUT Carbon Footprint for 2023

Brno University of Technology (BUT) acknowledges its responsibility toward the environment and, as part of its sustainability strategy, regularly evaluates its contribution to global greenhouse gas emissions. In cooperation with the renowned consulting company PricewaterhouseCoopers Czech Republic (PwC), we calculated the university's carbon footprint for 2023 in accordance with international GHG Protocol standards and ČSN EN ISO 14064. This professional collaboration ensures high quality and reliability of our measurement results.

The total carbon footprint of BUT in 2023 was 19,036 tonnes of CO_2e.

What is a carbon footprint?

A carbon footprint represents the total amount of greenhouse gases produced by an organization. It is expressed in tonnes of CO_2e (carbon dioxide equivalent), which is a unit that includes the effects of all greenhouse gases converted to the effect of CO_2.

Distribution of emissions by scopes

For clear monitoring and management of emissions, these are divided into three scopes according to the GHG Protocol methodology:

Scope 1: Direct emissions

- 3,787 tonnes of CO_2e (20%)
- Emissions generated directly on university premises, e.g., natural gas combustion in boiler rooms, emissions from vehicles owned by BUT, and other sources under direct university control.

Scope 2: Indirect energy emissions

- 13,489 tonnes of CO_2e (71%)
- Emissions generated during the production of purchased energy (electricity, heat) consumed within the university. These emissions physically occur outside the campus but are a consequence of BUT's activities.

Scope 3: Other indirect emissions

- 1,766 tonnes of CO_2e (9%)
- Emissions generated in the university's broader value chain, e.g., during business trips of employees, waste processing, water consumption, and other activities that BUT does not directly control but can influence.

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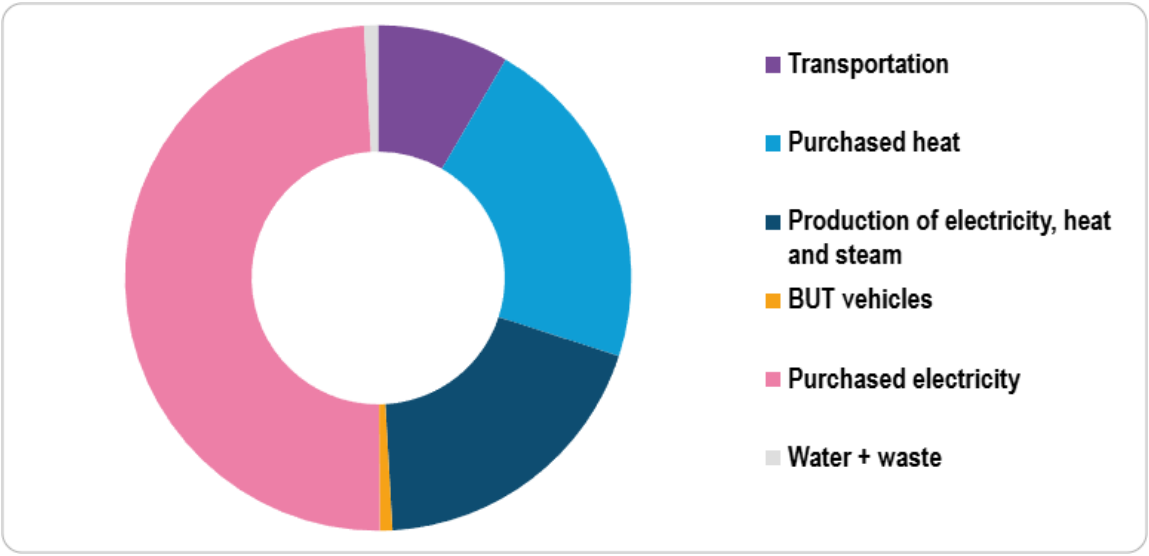
Emission structure by categories



The emission structure of BUT shows that the largest share consists of purchased electricity (49.3%), which the university consumes for the operation of buildings, laboratories, and various facilities. The second significant source is purchased heat (21.7%), used for space heating and water heating, which is supplied by external providers. The production of own energy, primarily through natural gas combustion, represents 19.1% of total emissions. Business trips of employees, conference participation, research stays, and international internships account for 8.4% of the total carbon footprint. A significantly smaller but not negligible share is represented by emissions from the operation of the university's vehicle fleet (0.7%) and emissions related to water consumption and waste management (0.6%).

What do these results mean?

The largest contribution to the university's carbon footprint comes from energy consumed during building operations - electricity, heat, and gas together represent **90% of all emissions**. This corresponds to the nature of a technical university with an extensive campus, specialized laboratories, and research facilities with high energy demands.

The analysis shows that BUT has the greatest potential to reduce emissions through measures focused on building energy efficiency and the use of renewable energy sources.

The importance of measuring carbon footprint

BUT Brno is one of the first technical universities in the Czech Republic to systematically measure its carbon footprint. Our foreign partner institutions such as Lappeenranta University of Technology (LUT) and Leibniz University Hannover (LUH) have already implemented this approach, while in the Czech academic scene, it is a pioneering approach. The calculation of the carbon footprint is an important step toward environmental responsibility and a basis for effective measures to reduce the university's ecological impact.

The carbon footprint calculation was carried out as part of the project "Acceleration of Green Skills and Sustainability at BUT in Brno" (Component 7.4 of the National Recovery Plan for Higher Education for 2023-2025) with the professional cooperation of PricewaterhouseCoopers Czech Republic, s.r.o.

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