

Greenhouse gas report 2020 of the University of Bern



Contents

1. **Background** _____ **3**

2. **2020 carbon footprint of the University of Bern** _____ **3**

2.1 System boundaries of the carbon footprint 3

2.2 Results of the 2020 carbon footprint 4

3. **Conclusion** _____ **6**

1. Background

The University of Bern is known worldwide for its research and teaching on the topics of sustainable development and climate studies. Yet sustainability and climate protection aren't just topics addressed in the University's research and teaching – they're actually a matter of special concern with respect to its operations, as well: the University is aware of its responsibility and makes every effort to minimize its operations-related CO₂ emissions. It has therefore set itself the goal of becoming a climate-neutral institution by 2025 in all areas in which it has direct influence.

The University of Bern calculated its carbon footprint for the first time in 2019 to take stock of where the University stands on the issue and to establish a base year for measures implemented in the future to reduce and offset carbon dioxide emissions. The 2020 carbon footprint described in the following is the second carbon footprint calculated for the University.

2. 2020 carbon footprint of the University of Bern

2.1 System boundaries of the carbon footprint

The University of Bern's carbon footprint considers all relevant greenhouse gases and expresses them in terms of carbon dioxide equivalents (CO_{2eq}).¹

The carbon footprint is geared toward the GHG Protocol, which distinguishes between direct emissions (Scope 1), indirect energy-related emissions (Scope 2) and other indirect emissions (Scope 3).² The University's carbon footprint factors in emissions from the following sources:

- Scope 1:
 - Heating oil
 - Natural gas
 - Fuels (university's fleet of vehicles)
 - Laboratory gases, experimental areas, livestock

- Scope 2:
 - District heating
 - District cooling
 - Electricity

- Scope 3:
 - Paper (Uniprint)
 - Water
 - Waste disposal (garbage and special waste)
 - Air travel

¹ All greenhouse gases were converted to carbon dioxide equivalents (CO_{2eq}) based on their specific global warming potential and using a time horizon of 100 years.

² The Greenhouse Gas Protocol. A Corporate Accounting and Reporting Standard, Revised Edition. World Business Council for Sustainable Development (WBCSD), and World Resources Institute (WRI).

Due to a lack of available data, the 2019 and 2020 footprints do not yet include business travel via public transportation and by car. Going ahead, the University aims to document these emissions as well and report them in its carbon footprint.

Emissions generated through the procurement of consumables and furnishings (laboratory equipment, furniture, IT devices, laboratory and office consumables) were not included in the carbon footprint due to a lack of data.

Operation of the student cafeteria, which is managed by an external company – ZFV-Unternehmungen – was excluded from the carbon footprint of the University of Bern since ZFV-Unternehmungen prepares its own carbon footprint.

2.2 Results of the 2020 carbon footprint

The University of Bern produced a total of around 4,742 tons of CO_{2eq} emissions in 2020. With around 4,854 employees expressed in terms of full-time equivalents (FTE), this corresponds to average emissions of roughly 0.98 t CO_{2eq} / FTE per year.

At 12%, the direct emissions (Scope 1) of the University of Bern only account for a small portion of overall emissions. Nearly 48% of overall emissions are related to district heating, electricity and district cooling (Scope 2), while the remaining approx. 40% can be attributed to other indirect emissions (Scope 3).

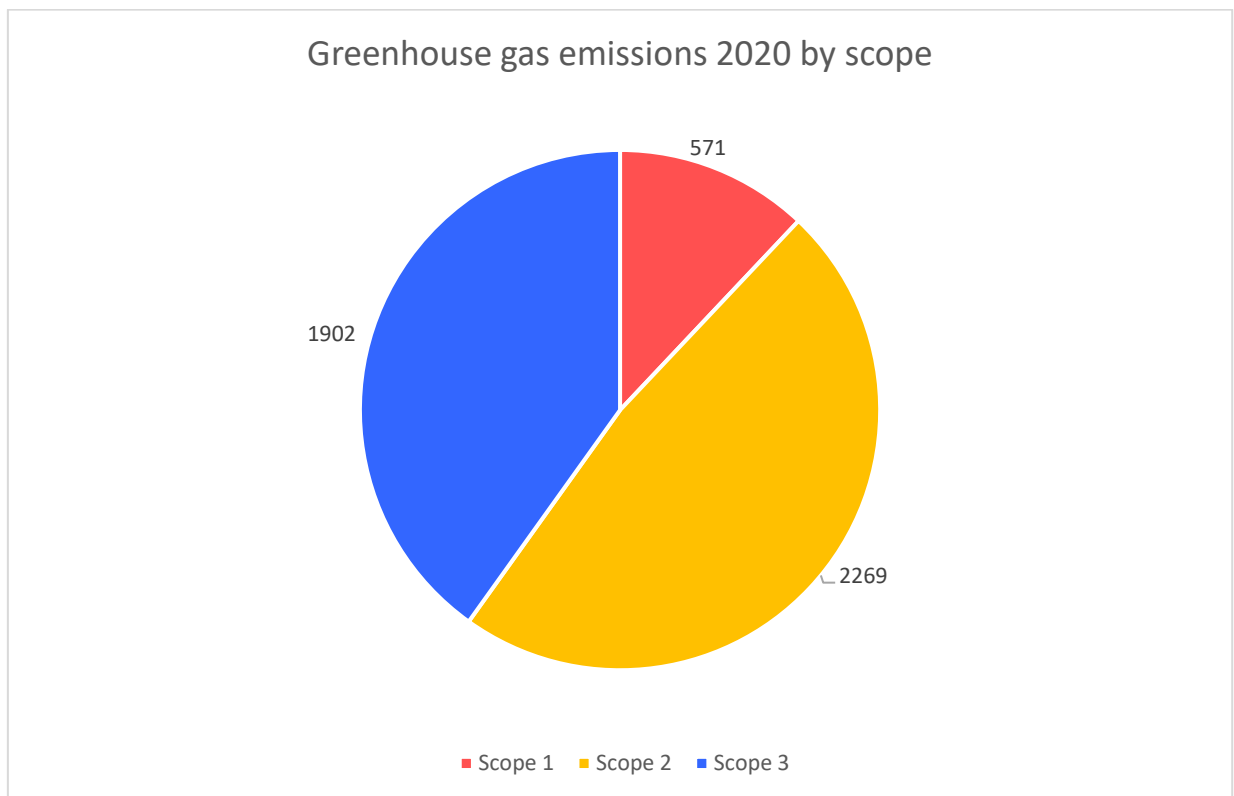


Figure 1: Greenhouse gas emissions of the University of Bern, 2020. Scope-based presentation of greenhouse gas emissions in CO_{2eq}

Some 33% of total emissions are caused by work-related air travel (1,563 t CO_{2eq}). The vast majority of emissions (approx. 41%) are generated by the suppliers of district heating. Unlike in the previous year, business travel no longer represented the largest source of emissions, a fact attributable to travel restrictions related to the coronavirus pandemic.

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Expressed as a percent of total emissions, smaller shares are produced in connection with purchased electricity (approx. 7%), the garbage disposal and natural gas consumption (approx. 5% each), heating oil consumption (approx. 4%) and operation of the vehicle fleet as well as special waste disposal (approx. 2% each). Emissions from laboratory gases, experimental areas, livestock farming, the purchase of drinking water, the use of paper and the purchase of district cooling only account for a marginal share of the overall footprint, which amounts to less than 0.7% in each case.

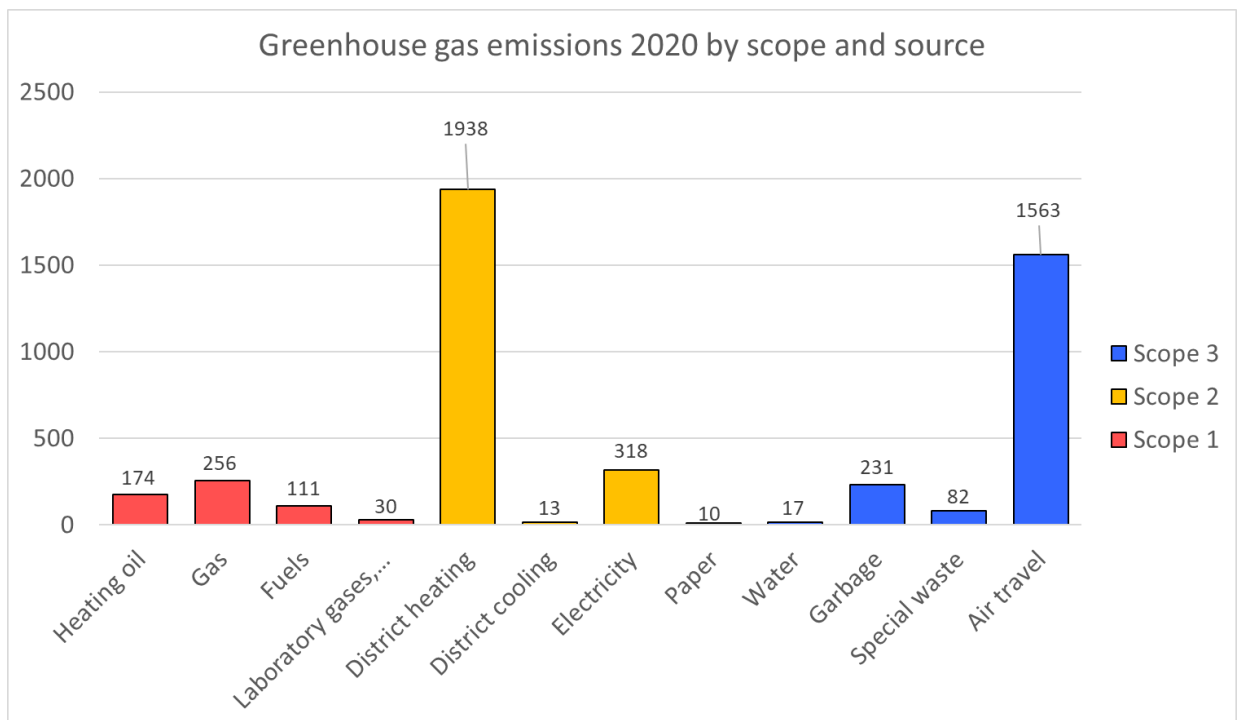


Figure 2: Greenhouse gas emissions of the University of Bern, 2020. Greenhouse gas emissions are shown by source, expressed in CO_{2eq} and attributed to the various scopes by color.

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3. Conclusion

The carbon footprints prepared for 2019 and 2020 paint very different pictures due to the coronavirus pandemic.

Taken together, total emissions in 2020 amounted to over 4,700 t CO_{2eq} (compared to 7,800 tons in the previous year). This decline is attributable to a reduction in the amount of air travel due to the coronavirus pandemic, with emissions from these flights dropping by around two-thirds, from 4,734 t CO_{2eq} in 2019 to 1,563 t CO_{2eq} in 2020. Since flights accounted for a smaller share, the percentage of emissions allocated to Scope 3 was also somewhat smaller than in the previous year.

Direct emissions (Scope 1) rose year over year. This is due to what appears to be an increase in the consumption of natural gas in 2020. That, however, is attributable to the fact that, when the carbon footprint for 2019 was being prepared, no data had been available regarding the natural gas consumption at two buildings. This data was collected for 2020 and incorporated into the footprint, which resulted in a corresponding increase in the figures for natural gas.

The other figures contained in the carbon footprint remained relatively stable. Year-over-year changes are particularly evident as a result of differences in how university buildings were used in response to the requirements and recommendations that were put into place nationwide from March 2020 onward in an effort to contain the coronavirus pandemic. Buildings were still heated with heating oil, natural gas and district heating. In fact, there was actually a slight year-over-year increase in greenhouse gas emissions in these areas. That is largely attributable to the fact that, when preparing the carbon footprint for 2019, information regarding the greenhouse gas emissions attributable to natural gas had not been available for two buildings. As a result of the pandemic, ventilation systems' operating mode was changed to ensure that more outside air would be heated. With employees and students on site less frequently due to the coronavirus pandemic, year-over-year declines were reported with respect to direct emissions from the vehicle fleet, laboratory gases and experimental areas as well as to indirect emissions that arise in connection with the purchase of drinking water, the use of paper and garbage disposal. Due to the change in the conditions, a comparison of the two footprints is not meaningful.