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Sustainable Business Travel

Guidelines for Swedish Higher Education Institutions

Adopted by the Board of the Association of Swedish Higher Education Institutions 25 February 2026

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Foreword

We live in a time of complex societal challenges in which the demands of the green transition may appear endless. The challenges are not merely technological, nor are they simply a matter of greater efficiency: they are about ecosystems and social and cultural restructuring. Higher education institutions (HEIs) can play a vital role in the transition through research, education and innovation, as well as by transitioning their own organisations and operations. By being pioneers, HEIs can inspire other stakeholders to develop sustainable working methods. When HEIs act in accordance with their own research on sustainable development, they strengthen their credibility.

The Climate Framework for Universities and University Colleges was developed in 2019 to provide HEIs with guidance in their efforts to reduce climate impact in line with Sweden's national and international commitments. The Climate Framework was adopted by the Association of Swedish Higher Education Institutions (SUHF) in 2021. The HEI Climate Network was established the following year in order to accelerate the climate transition and reduce emissions from the higher education sector, including by preparing sector-specific guidelines that could be used by all HEIs.

The document you have before you, *Sustainable Business Travel: Guidelines for Swedish Higher Education Institutions*, has been prepared based on the work of the HEI Climate Network's Focus Group on Business Travel. The guidelines are intended to offer HEIs tangible support in their work to reduce the climate impact of business travel in the higher education sector. As such, the guidelines primarily deal with climate and environmental sustainability. Our hope is that the recommendations contained in the guidelines will be implemented to facilitate real change at HEIs.

The target group for the guidelines is staff at HEIs who are involved in the planning or authorisation of meetings and travel, in calculating and reporting associated climate impact, or in drawing up local guidelines.

The work of preparing these guidelines has been implemented in several stages. Experts have performed emission calculations and developed calculation methods, while delegates from HEIs[1] have attended workshops to share experiences and knowledge of sustainable business meetings and travel, as a basis for recommending working methods that can significantly reduce the greenhouse gas emissions associated with HEIs' business travel. To provide some idea of the scope of emissions, environmental management data reported to the Swedish Environmental Protection Agency have been compiled. To obtain a picture of governance,

[1] Workshops have been attended by delegates from the following HEIs: Blekinge Institute of Technology, Chalmers University of Technology, the University of Gothenburg, Dalarna University, the University of Borås, the University of Gävle, Jönköping University, University West, Karolinska Institutet, KTH Royal Institute of Technology, Linköping University, Linnaeus University, Lund University, Malmö University, Mid Sweden University, the Swedish University of Agricultural Sciences, Stockholm University, Södertörn University, Umeå University, Uppsala University and Örebro University. Alumni of KTH and delegates from the Swedish Environmental Protection Agency have also participated.

management and working methods at HEIs, internal policy documents, guidelines and other relevant documents established by HEIs have been compiled.

The guidelines have been limited to HEIs business travel. The calculation methods discussed here largely relate to air travel, as these emissions account for the majority of the climate impact of HEIs' business travel.

The Focus Group on Business Travel performed its work during the period 2023–2025. The group consisted of: Markus Robért, Andreas Schennings, Jonas Åkerman (KTH); Andréas Litsegård (University of Gothenburg); Hanna Stafhammar Kjellgren (University West); Maria Westerlund (University of Borås); Karl Hillman (University of Gävle); and Viktor Kaldo (Linnaeus University). Representatives of the host constellation of the HEI Climate Network have participated in the process and the preparation of the guidelines. The Swedish Environmental Protection Agency, Swedish Transport Administration and IVL Swedish Environmental Research Institute have also been consulted concerning the guidelines and recommendations.

Please feel free to disseminate these guidelines for use by other agencies and stakeholders.

General recommendations

Goals

- Set measurable goals for business travel in accordance with the Paris Agreement.
  - By 2030: Reduce emissions from business travel by 50 to 75 per cent compared to 2019.
  - By 2040: Reduce emissions from business travel by at least 90 per cent compared to 2019.
  - By 2050: Net-zero emissions from business travel.
- Set specific goals for short-, medium- and long-haul flights respectively.

Calculation methods

- Try to use standardised calculation methods to facilitate comparisons of emissions from business travel within and between HEIs.
- Calculate emissions from business travel in carbon dioxide equivalents (CO_2e) based on science-based standard values.
  - Include emissions data from all travel paid for by the HEI in calculations: flights, hire cars, private cars, taxis, buses, ferries and other modes of transport, including machines and other vehicles.
  - Calculate air travel based on benchmarks for short-haul flights (<750 km), medium-haul flights (750–3,500 km) and long-haul flights (>3,500 km).
- If you change your calculation method, recalculate emissions from previous years for comparability. This applies to emissions from both air travel and other modes of transport. However, if emission factors are updated due to technological development, changes to energy mix or policy changes (for example, amendments to the CO_2 reduction obligation), do not recalculate old data; apply the changes from the year in which they are introduced.
- Hotel and student-related travel (exchange trips, for example) should not be included when following up business travel, although they can be included in Scope 3 when following up the HEI's total emissions.
- Request from travel service providers/internally:
  - Air travel: passenger kilometres per leg and seat class. If breaking down emissions by organisational level, this too needs to be stated.
  - Hire car/private car/taxi: firstly fuel consumption, secondly distance and type of vehicle, thirdly cost.
  - Train: passenger kilometres and country/region.
  - Bus travel: passenger kilometres for bus ticket, vehicle kilometres for coach hire, plus type of fuel.
  - Ferry travel: passenger kilometres per leg, ticket for foot passenger or car.
  - Machines and other vehicles: amount (in litres) and type of fuel.
  - Other modes of transport: see the Swedish Environmental Protection Agency's standard template or use alternative science-based standard values.

Follow-up

- Follow up your goals at least once a year in conjunction with annual reporting and reporting to the Swedish Environmental Protection Agency pursuant to the Ordinance on Environmental Management in Government Agencies (SFS 2009:907). Emission data should be followed up at relevant organisational levels.
- If possible, coordinate follow-up of emissions data with financial follow-up.

Governance and incentives

- Create a sustainable travel culture that permeates the entire organisation, in which management is a role model and initiates dialogue concerning experiences of sustainable meetings and travel.
- Create a framework for sustainable business travel by combining internal guidelines, policy documents and incentives (based on Table 2).
- Create a decision-making stairway to support managers and staff in making sustainable decisions about meetings and travel (based on Figure 2).
- Place requirements on travel service providers to integrate and highlight the HEI's policy document on meetings and travel in their booking system, such as by visualising climate impact when booking a trip.

Tools for visualising and distributing emissions

- Map emissions and use digital tools to visualise climate impact.
- Prepare emissions budgets and follow up emissions at relevant organisational levels.
- Create en internal climate fund to promote sustainable business travel.

1. Introduction

Pursuant to the Higher Education Act (SFS 1992:1434), in the course of their operations, higher education institutions shall promote sustainable development to assure for present and future generations a sound and healthy environment, economic and social welfare, and justice. The Ordinance on Environmental Management in Government Agencies (SFS 2009:907) states that higher education institutions (and other agencies) must work systematically to reduce their climate impact. Among other things, this means reducing and following up emissions from business travel. It also states that government agencies must utilise energy-efficient information technology as a tool for the climate transition of their operations and, to the same ends, prepare a meeting and travel policy. In other words, meetings and travel are a significant element of an HEI's systematic environmental management. As meetings that require business travel are a natural and often necessary part of an HEI's activities – national and international collaboration, research exchanges and conferences being important elements thereof – setting goals for the emissions associated with business travel is often a complex, strategic issue for HEIs.

Business travel[2] currently accounts for between 10 and 40 per cent of HEIs' greenhouse gas emissions[3] and, in many cases, over 95 per cent of these emissions come from air travel. Although overall emissions from business travel decreased in the compiled environmental management statistics reported to the Swedish Environmental Protection Agency by government agencies in 2024[4], many HEIs stick out for their high emissions in the business travel category. That said, emission calculations for this annual reporting are not fully harmonised, which is a shortcoming in itself. In the interests of the comparability, transparency and credibility of HEIs' climate reporting, it is important that HEIs have common methods for calculating emissions from business travel, both so that the collected data provide an adequate basis for strategic decisions, and to strengthen the overall accountability of the sector in the green transition.

An argument could also be made that climate transition efforts at HEIs should be more ambitious than in society in general, given that academia ought to have a high level of knowledge and awareness of climate change and that, as scientific institutions, HEIs should act on research into climate change.

Rather than restricting teachers and researchers in practicing their profession, a more restrained approach to business travel ought to create the conditions for sustainably conducting high-quality, internationally preeminent research and education. To this end, HEIs need to cooperate both nationally and internationally.

The remainder of these guidelines is divided into three sections. Section 2 describes goals, calculation methods and the follow-up of emissions from business

[2] According to the Ordinance on Environmental Management in Government Agencies, this includes air travel, journeys by private car, hire car, taxi, train and other public transport, ferry and machines one's own vehicle.

[3] Network for Environmental Management at Universities and University Colleges (MLUH). 2023. Survey of implemented climate inventories at HEIs.

[4] Swedish Environmental Protection Agency. 2025. *Miljöledning i staten 2024*. https://www.naturvardsverket.se/publikationer/7100/978-91-620-7180-6/

travel. Section 3 explains how HEIs can manage and incentivise sustainable meetings and travel. Section 4 describes tools for visualising and distributing emissions.

2. Goals, calculation methods and follow up

In this section, we look at goals in relation to the Paris Agreement, methods for calculating emissions from business travel, and following up results and compiling emission data. Although the section deals with business travel broadly, there is a specific focus on air travel, as these emissions account for the majority of the climate impact of HEIs' business travel.

2.1 Introduction

There are certain goals that HEIs need to bear in mind in order to reduce emissions from air and other business travel. There are Swedish climate goals, including: reducing domestic transport-related emissions (excluding domestic flights, which are included in the EU Emissions Trading System) by 70 per cent by 2030 compared to 2010; and the national climate target of net-zero[5] greenhouse gas emissions by 2045, and after that to achieve negative net emissions.

The EU also has the goal of being climate-neutral by 2050 and thereafter achieving negative emissions[6]. This goal is legally binding on all EU Member States and covers all greenhouse gas emissions[7] within the Union's borders. The EU's climate goal includes all flights within the EU through the EU Emissions Trading System (EU ETS). There are also global climate regulations that regulate international air travel outside the EU, although these are not as extensive nor as strict as the EU system. These include ICAO CORSIA and the International Air Transport Association's (IATA's) own resolution to achieve net-zero carbon emissions by 2050. These are not, however, legally binding.

Initiatives to limit greenhouse gas emissions from air travel:

- EU Emissions Trading System (EU ETS): The aviation sector is covered by EU ETS, meaning that airlines must buy allowances, with one allowance giving the right to emit one tonne of CO_2e within the EU.
- ReFuel EU Aviation: This regulation promotes the increased use of sustainable aviation fuel (SAF), with the target of a 70 per cent share of SAF in all EU airports from 2050. For 2025, the regulation requires a 2 per cent SAF blend at EU airports.
- Destination 2050: An industry alliance committed to climate neutral European aviation in line with the EU climate goals and the Paris Agreement, with the target of net-zero emissions by 2050 thanks to technological advances, sustainable aviation fuel and efficient air traffic control.
- ICAO CORSIA: The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) is run by the International Civil Aviation

[5] Achieving zero net emissions of greenhouse gases means that the emissions of greenhouse gases from activities in Sweden shall be at least 85 per cent lower in 2045 compared to 1990. The remaining reductions down to zero can be achieved through supplementary measures such as increased uptake of carbon by forests or soil, or reducing emissions in other countries.

[6] EU. 2021. European Climate Law. https://climate.ec.europa.eu/eu-action/european-climate-law_en?prefLang=sv [27.08.2025].

[7] This includes carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and fluorinated gases (F-gases), such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6).

Organization (ICAO). CORSIA is intended to restrict net CO_2 emissions from international aviation to 85 per cent of the 2019 level. The framework is voluntary from 2021 and will be compulsory from 2027. A new ICAO standard[8] for aviation fuel efficiency will also enter into effect in 2031.

Despite these initiatives, the aviation sector faces challenges, not least the slow pace at which alternative aviation fuels and technologies are developing, with SAF remaining significantly more expensive than fossil fuels. Additional investment and policy instruments are needed to accelerate the green transition within the aviation sector.

2.2 Current situation

With regard to goals, calculation methods and follow-up, the Ordinance on Environmental Management in Government Agencies (SFS 2009:907) places requirements on Swedish government agencies to set goals for the reduction of emissions from business travel and to annually report progress, measured as emissions of CO_2 in kilogrammes, to the Swedish Environmental Protection Agency. The report must include emissions from flights, cars, boats, buses, trains and machines and other vehicles. The guidelines on the application of the ordinance[9] state that the report should include business trips taken by consultants on behalf of the HEI, as well as the transportation of goods to and from the agency.

At present, Swedish HEIs use various methods to follow up their emissions from business travel. Consequently, the data reported is not directly comparable, something that has an adverse effect on the quality of compiled reporting of HEIs emissions data. Among other things, HEIs report emissions from business travel in different units. While most HEIs quantify emissions in units of carbon dioxide (CO_2)[10] when reporting to the Swedish Environmental Protection Agency[11], some report in units of carbon dioxide equivalent (CO_2e)[12], possibly because the latter have formulated their climate goals in accordance with the Greenhouse Gas Protocol (GHG Protocol)[13].

Calculation methods also vary. Some HEIs report emissions data obtained from travel service providers with framework agreements, while others use the Swedish

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[8] European Commission. 2025. Commission welcomes ICAO agreement on new aircraft standards for fuel efficiency and noise levels driving sustainability in aviation. https://transport.ec.europa.eu/news-events/news/commission-welcomes-icao-agreement-new-aircraft-standards-fuel-efficiency-and-noise-levels-driving-2025-03-03_en [25.09.2025]

[9] Swedish Environmental Protection Agency. 2017. Guidelines on environmental management at government agencies. Report 6768. June 2017.

[10] Carbon dioxide is one of several major greenhouse gases and the most common contributor to global warming (atmospheric water vapour is the most prevalent greenhouse gas but is not considered a primary cause of the greenhouse effect).

[11] Swedish Environmental Protection Agency. 2025. Guidelines on environmental management at government agencies. https://www.naturvardsverket.se/vagledning-och-stod/miljomal-och-miljoledning/miljoledning-i-staten/#E-342661061 [30.06.2025]

[12] Carbon dioxide equivalent (CO_2e) is a standard unit used to compare the emissions from various greenhouse gases on the basis of their global-warming potential (GWP), by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential.

[13] The Greenhouse Gas Protocol (GHG Protocol) is the most widely used international standard for calculating and reporting greenhouse gas emissions. The GHG Protocol defines three areas of emissions (Scopes 1, 2 and 3) and uses the unit carbon dioxide equivalent (CO_2e) based on global warming potential to compare the climate impact of different gases.

Environmental Protection Agency's standard values. Different travel service providers may also use different emission factors in their calculations, and emission factors may also vary over time.

Many HEIs have set goals for the reduction of emissions from business travel. While these goals may be formulated differently, the point of departure is almost always that emissions from business travel (and other emissions) should reach a level corresponding to goals for international and national climate measures.

In the interests of the comparability, transparency and credibility of HEIs' climate reporting, it is important that HEIs have common methods for calculating emissions from business travel. Without this uniformity, there is a risk that the data will be difficult to interpret and inadequate as a basis for strategic policymaking. A harmonised calculation model also strengthens the sector's accountability in the green transition.

2.3 Working methods

2.3.1 Goals

If HEIs are to reduce their climate impact in accordance with the Paris Agreement, with the goal of net-zero emissions by 2050, science-based targets[14] are needed to hold the increase in the global average temperature to well below 2°C, and preferably 1.5°C, above pre-industrial levels. Global warming should thus not exceed 1.5°C by the end of this century.

In order to reduce emissions in line with the Paris Agreement, total global greenhouse gas emissions must be reduced by between 40 and 50 per cent[15] by 2030 and 70 per cent by 2040 compared to 2019. The target for 2050 is net-zero emissions. To reduce emissions in line with the Paris Agreement, it is recommended that HEIs set specific emission targets for business travel that reduce emissions by 50 per cent by 2030 and 90 per cent by 2040 compared to the baseline year 2019.

Various stakeholders[16] [17] argue that current international and national climate goals are insufficient to ensure that global warming is restricted to the overarching goal of the Paris Agreement. As new findings and new data are produced, requirements for emission reductions may change. HEIs must be aware that their ambitions may need to exceed the recommendations in these guidelines, and that they must continuously develop their climate goals to keep pace with scientific knowledge.

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[14] Science Based Targets initiative (SBTi). 2023. https://sciencebasedtargets.org/ [27.08.2025].

[15] IPCC, 2023: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee, and J. Romero (eds.)]. IPCC, Geneva, Switzerland.

[16] EU. 2025. G20 climate strategies insufficient to meet Paris Agreement goals. https://joint-research-centre.ec.europa.eu/jrc-news-and-updates/g20-climate-strategies-insufficient-meet-paris-agreement-goals-2025-01-31_en [09.09.2025]

[17] Earth System Dynamics (2020). Incremental improvements of 2030 targets insufficient to achieve the Paris Agreement goals. Earth Syst. Dynam., Geiges, A. et al. 11, 697–708, 2020. https://doi.org/10.5194/esd-11-697-2020 [25.09.2025]

2.3.2 Calculation methods

Greenhouse gas emissions should be quantified in accordance with the GHG Protocol[18]. This means reporting emissions in carbon dioxide equivalent (CO_2e) to include more greenhouse gases based on their global warming potential (GWP)[19]. Calculations should also take account of the disproportionate effect of high-altitude emissions, as climate impact is greater when greenhouse gases are emitted higher in the atmosphere. Calculating the high-altitude effect takes into account non-CO_2e effects such as contrails, nitrous oxide and water vapour that affect cloud formation and radiation balance.

When quantifying emissions from other modes of transport – such as bus, train, ferries, machines and other vehicles – consideration should be given to choice of vehicle model, capacity utilisation, fuel and electrification, as these factors can have significant implications for emissions from a lifecycle perspective.

Although the Ordinance on Environmental Management in Government Agencies (SFS 2009:907) states that government agencies must report emissions to the Swedish Environmental Protection Agency in CO_2, using CO_2e provides a more detailed overall picture of climate impact and facilitates fairer follow-up and governance in line with international standards. To facilitate efforts to reduce emissions from business travel, HEIs should also try to report their emissions based on a universal method. This includes both emissions data that the HEI itself calculates and emissions data supplied by travel service providers with framework agreements. To enable year-over-year comparison of emissions at institutional level, each HEI should have a consistent policy concerning which or whose travel is to be included; for example, whether students and visiting lecturers are to be included. One rule of thumb might be to include all travel paid for by the HEI.

Emissions from air travel

Aviation accounts for approximately 2.5 per cent[20] of total global CO_2 emissions. This figure does not, however, include factors such as high-altitude emissions of water vapour, nitrous oxide and contrails. These factors may increase the total climate impact of flying by 70[21] or in some cases 100 per cent[22]. In Sweden, total emissions from the aviation sector have decreased compared to pre-pandemic levels. However, international flights increased by 9 per cent in 2023 compared to

[18] GHG Protocol Category 6: Business Travel, *Technical Guidance for Calculating Scope 3 Emissions.* https://ghgprotocol.org/sites/default/files/2022-12/Chapter6.pdf [05.06.2025].

[19] GWP is a metric for the potential of each greenhouse gas to contribute to global warming in comparison to carbon dioxide.

[20] IEA. 2025. Tracking Aviation. https://www.iea.org/energy-system/transport/aviation [25.09.2025]

[21] SMHI 2025. Climate Impact. https://www.smhi.se/kunskapsbanken/klimat/klimatpaverkan (25.08.2025).

[22] In international reporting, a radiative forcing (RF) multiplier of ~1.9 is sometimes used (Defra). There is significant uncertainty regarding this figure and studies indicate that non-CO_2 effects account for approximately two-thirds of aviation's total contribution to global warming (Lee et al. 2021).

2022,[23] while in 2024, domestic flights decreased by 7 per cent compared to the previous year[24].

The climate impact of air travel varies depending on several factors, including the length of the route. As a larger percentage of a flight's climate impact occurs during take-off and climbing, short-hauls flights generally have higher CO_2 emissions per kilometre. That said, a smaller percentage of a short-haul flight takes place at cruising altitude, meaning that the high-altitude effect is limited. This situation is reversed for long-haul flights, so the high-altitude effect accounts for more of the overall climate impact. Long-haul flights also tend to have more legroom, which has a negative impact on emissions per passenger kilometre. Aside from the route, emissions are also affected by factors such as the model of plane, seat class, time of year, altitude and atmospheric conditions.

Pursuant to the Ordinance on Environmental Management in Government Agencies (SFS 2009:907), reporting on air travel is to be divided between flight legs under and over 500 kilometres. Each leg counts as a separate journey. For example, a domestic return journey between Umeå and Gothenburg with a stopover in Stockholm involves four short-haul flights. The 500-kilometre demarcation must continue to be used when reporting to the Swedish Environmental Protection Agency.

These guidelines are based on a scientific calculation model[25] developed by analysing approximately 450,000 flights (legs) per year. Using linear regression, the researchers have developed emission factors (Kg CO_2e per passenger kilometre) that vary depending on travel distance and seat class. The model divides flights into three distance categories:

- Short-haul: < 750 km (comparable with a domestic flight)
- Medium-haul: 750–3,500 km (comparable with a flight within Europe)
- Long-haul: > 3,500 km (comparable to an intercontinental flight)

The use of 750 kilometres as the demarcation for short-haul flights, rather than 500 kilometres as in the Ordinance on Environmental Management in Government Agencies (SFS 2009:907), is based on the assumption that journeys under 750 kilometres can often be taken by train or some other mode of transport instead of flying, particularly in Europe where infrastructure is well developed. These distance categories also reflect the actual level of emissions at the different distances.

Emissions per kilometre vary with distance:

- Short- and medium-haul flights have a relatively linear relationship between distance and emissions.

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[23] Swedish Environmental Protection Agency. 2024. International shipping and aviation, greenhouse gas emissions. https://www.naturvardsverket.se/data-och-statistik/klimat/vaxthusgaser-utslapp-fran-utrikes-sjofart-och-flyg/ [12.09.2025]

[24] Swedish Environmental Protection Agency. 2025. Domestic transport, greenhouse gas emissions. https://www.naturvardsverket.se/data-och-statistik/klimat/vaxthusgaser-utslapp-fran-inrikes-transporter/ [09.12.2025].

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[25] Schennings, A., Larsson, J. & Robèrt, M. 2019. Development and implementation of an emission optimization model for passenger flight bookings. Sustainable Environment Research, 29, 25.

- The variation in emissions is greater over long-haul flights.

When conducting aggregated analyses, we recommend using standard values for each distance category and seat class. Standard values based on actual flights during 2024 are presented in Table 1. Figure 1 illustrates how the standard values have been prepared by the Climate Network's Focus Group using linear curve fitting based on detailed flight data.

Table 1: Standard values for flight distance and seat class in CO_2e per passenger kilometre, from 2024.

Seat class	**Short-haul < 750 km**	**Medium-haul 750–3,500 km**	**Long-haul > 3,500 km**
Economy	*0.129*	*0.129*	*0.141*
Economy plus	*0.170*	*0.177*	*0.174*
Business	*0.197*	*0.215*	*0.369*
First class	*0.425*	*0.522*	*0.578*
General (unknown class)	0.131	0.131	0.147

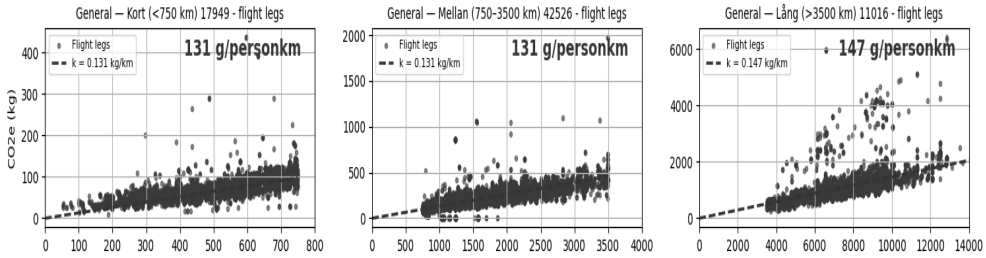

Figure 1: The diagrams show emissions in CO_2e from some 70,000 short-, medium- and long-haul flights taken on business for selected Swedish HEIs during 2024. Based on this data, linear regression has been used to prepare standard values for short-, medium- and long-haul flights when seat class is unknown.

Standard values for emission factors for 2019, 2023 and 2024 are presented in Appendix 2, including percentage differences between years. The appendix also refers to the entire model that can be used to calculate emissions for other years, whether previous or future.

As the emission factors for 2024 show an average decrease of over 8 per cent compared to the emission factors for 2019, it is critical to update emission factors regularly to ensure fair and comparable climate reporting.

We recommend that on transitioning to the method presented here, HEIs at least recalculate emissions for the baseline year 2019 and for 2024. This will facilitate relevant comparisons and follow-ups of emissions over time. It is for each HEI to decide how the years in between should be dealt with given the available resources and need. The most important thing is to apply the method consistently and transparently so that changes in the level of emissions reflect real behavioural changes rather than methodological variations.

Calculating emissions (kg CO_2e) from air travel using standard values requires the following data for each distance category from the travel agent:

- Distance (km)
- Seat class (economy, economy plus, business, first class)
- Organisational affiliation, if the intention is to attribute emissions to different parts of the organisation.

If no information is available concerning seat class, the standard values "General (unknown class)" can be used.

The calculation model does not differentiate between flights based on the use of biofuels (although travel service providers do offer this as a supplement[26]). This is because the blend of biofuels varies considerably between air operators and is generally very low[27]. At present, this data is therefore deemed too unreliable for inclusion in calculations.

Standard values must be updated annually to reflect changes in the aircraft fleet, utilisation of capacity and other relevant factors and then applied to travel data for the year in question. If the calculation method changes significantly, previous calculations should be retroactively recalculated, specifically to ensure comparability with the HEI's baseline year.

To report to the Swedish Environmental Protection Agency in units of CO_2, the HEI can divide emissions expressed in CO_2e by 1.7 (dividing flights into distances of under and over 500 km).

Emissions from hire cars/private cars/taxis[28]

Climate impact from car journeys is largely dependent on the number of passengers and type of fuel. A car with a single occupant running on fossil fuel may even have higher emissions per passenger kilometre than an aircraft. A corresponding journey by electric vehicle (including manufacturing emissions) or biogas vehicle will generate lower emissions, although these will be significantly higher than for a corresponding train journey. Calculating emissions from car journeys requires data on fuel consumption or distance travelled multiplied by relevant science-based emission factors, in accordance with the Swedish Environmental Protection Agency's climate impact calculation tool[29] or some other research benchmark.

[26] When a biofuel-inclusive ticket is selected when booking a flight, the air operator promises to replace a corresponding amount of the consumption of fossil aviation fuel with biofuel, often referred to as sustainable aviation fuel (SAF).

[27] IATA. 2024. Disappointingly Slow Growth in SAF Production. https://www.iata.org/en/pressroom/2024-releases/2024-12-10-03/ [09.09.2025].

[28] When calculating emissions from the various modes of transport describe in this section, include emissions from the production of fuel and electricity. For journeys by car, also include emissions from manufacturing.

[29] Swedish Environmental Protection Agency. 2025. Climate impact calculation tool [02.07.2025].

Hire car companies with central framework agreements are required to submit data on mileage, type of vehicle and type of fuel, unless they supply emission data directly.

For taxi journeys, the only available data is usually cost. The Swedish Environmental Protection Agency's climate impact calculation tool assumes that the fare is used to calculate climate impact.

The easiest metric for business travel using a private car is the number of kilometres driven (which is reported when claiming expenses) along with standard values for different types of vehicles. If the type and size of vehicle is unknown, total kilometres can be divided based on the national average for various types of vehicles using annual statistics from Transport Analysis.[30]

Emissions from train travel

Emissions from train travel are relatively low compared to other modes of transport. If the train runs on diesel or electricity generated from coal or natural gas, the climate benefit will be less. In order to calculate emissions from train journeys, the travel agent will need to report the following per leg of the journey:

- Distance within Sweden
- Distance within the Nordic region
- Distance within Europe
- Distance outside Europe

Emissions can be calculated using the Swedish Environmental Protection Agency's climate impact calculation tool, which includes Swedish, Nordic and EU28 electricity mix, or some other research benchmark. Please note that there is a separate standard value for trains with diesel locomotives. Train journeys outside Europe are rare in HEIs' travel statistics. Neither the Swedish Environmental Protection Agency nor the UK Department for Environment, Food & Rural Affairs (Defra)[31] defines emission factors for train travel outside Europe. For journeys by train outside Europe, use the fuel type generally used in the country in the Swedish Environmental Protection Agency's climate impact calculation tool, or some other research benchmark.

Emissions from journeys by bus

Coach hire companies should be able to provide data on mileage and fuel type. For journeys by bus booked through a framework agreement with a travel agent, it

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[30] Transport Analysis 2025. Vehicle statistics. Website with national statistics. https://www.trafa.se/vagtrafik/fordon/ [09.06.2025]

Swedish Environmental Protection Agency. 2025. *Vägledning till verktyg för beräkning av koldioxidutsläpp och klimatpåverkan från resor, transporter och arbetsmaskiner.* Version winter 2024/25. https://www.naturvardsverket.se/48ddac/contentassets/1224aae0cb7c48138c68f1b6c55e00d4/vagledning-klimatberakningsverktyg-20250110.pdf [20.08.2025]

[31] Department for Energy Security and Net Zero. 2024. 2024 Government Gas Conversion Factors for company reporting: Methodology Paper for Conversion factors Final Report. https://assets.publishing.service.gov.uk/media/66a9fe4ca3c2a28abb50da4a/2024-greenhouse-gas-conversion-factors-methodology.pdf [20.08.2025].

should be possible to obtain data on passenger kilometres. If fuel type is unknown, climate impact is calculated by dividing standard passenger kilometres based on the national fuel mix or general standard values for buses. For bus journeys on public transport in different counties, use the Swedish Environmental Protection Agency's climate impact calculation tool or some other research benchmark.

Emissions from journeys by ferry

Journeys by ferry normally generate emissions comparable with air travel, or sometimes slightly higher. However, if the ferry journey is one leg in a journey mostly completed by train, there is a significant climate benefit compared to flying. This also applies to train journeys on the Continent, even if these have a somewhat higher climate impact than train journeys in the Nordic countries.

To calculate emissions from journeys by ferry, at a minimum distance data should be obtained. For more detailed calculations, data should also be collected on ticket type (car or foot passenger) and place of departure and destination (alternatively the ferry company). Emissions are calculated with the aid of the Swedish Environmental Protection Agency's climate impact tool or some other research benchmark.

Emissions from machines and other vehicles

Machines and other vehicles include the HEI's own motorised machinery, off-road vehicles, lorries and boats. Snowmobiles and hovercraft also fall into this category. Emissions from machines and other vehicles are followed up by obtaining data on type of fuel and fuel consumption for the various vehicles and then using the Swedish Environmental Protection Agency's climate impact calculation tool.

Emissions from other modes of transport

Other modes of transport include trams and light rail transit systems. Emissions from business travel on other modes of transport should be followed up with the aid of the Swedish Environmental Protection Agency's climate impact tool or some other research benchmark.

Emissions from hotels

The climate impact of staying in hotels is not included in reporting to the Swedish Environmental Protection Agency. HEIs may, however, follow up and compare emissions from an additional night in a hotel with emissions from a flight when, for example, choosing between taking a train a day in advance rather than travelling on an early morning flight. Emissions from hotels can also be included in Scope 3 for the HEI's total climate emissions. A hotel's emissions vary depending on the country, energy sources and the hotel's sustainability management[32]. The average climate impact of one night in a Swedish hotel is just under 7 kg CO_2 per guest. However, there is one example of a hotel chain with an ambitious sustainability policy

[32] Travel CO_2. 2024. *Hotel Emissions per Guest Night*. https://www.travel-co2.com/ [20.08.2025].

that has reduced emissions to as little as 0.3 kg CO_2 per guest night[33] by using renewable electricity and efficient energy use.

Emissions from European hotels vary depending on factors such as energy sources, climate and the hotel's energy efficiency. For example, the average in France is just under 5 kg CO_2 per guest night[34], while the corresponding figure for Spain is close to 30 kg CO_2[35].

Defra's methodology can be used to calculate emissions per hotel night. Defra compiles annual emission factors, including for hotel nights, based on national averages. These emission factors are available to the public on the department's website[36]. To calculate emissions from hotels using Defra's methodology you will need data on the number of hotel nights per country.

To reduce climate impact, travellers can choose accommodation that generates lower emissions, such as hotels that have a clear commitment to sustainability[37]. Choosing accommodation that uses renewable energy and has efficient energy systems can significantly reduce total climate impact.

2.3.3 Follow-up and reporting

According to the Ordinance on Environmental Management in Government Agencies (SFS 2009:907), follow-up and reporting is a vital part of systematic environmental management. The results of follow-ups are also the basis for reporting in the HEI's Annual Report and for reporting to the Swedish Environmental Protection Agency. They are also a prerequisite for the continuous improvement of the HEI's environmental management system. If environmental management is to be successful, it should be part of routine operational planning and follow-up at relevant organisational levels.

If the follow-up of environmental management is coordinated with other follow-ups – financial, for example – climate transition becomes a natural part of routine follow-up.

2.4 Recommendations

2.4.1 Setting goals

- Set measurable goals for business travel in accordance with the Paris Agreement.
  - By 2030: Reduce emissions from business travel by 50 to 75 per cent compared to 2019.

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[33] Scandic Hotels Group. (2023). *Sustainability Report 2022*. https://www.scandichotelsgroup.com/sustainability/ [20.08.2025].

[34] ADEME. 2020. *Base Carbone – Données Hôtellerie*. https://base-empreinte.ademe.fr/ [20.08.2025].

[35] Travel CO_2. 2024. *Hotel Emissions per Guest Night*. (Spain ≈ 29 kg CO_2 per guest night).

[36] Defra. 2025. Government conversion factors for company reporting of greenhouse gas emissions https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting#annual-conversion-factor-publications [20.08.2025].

[37] Greenview & Cornell University CHR. 2022. *Hotel Carbon Measurement Initiative (HCMI)*. https://greenview.sg/hotel-carbon-measurement-initiative/ [20.08.2025].

  - By 2040: Reduce emissions from business travel by at least 90 per cent compared to 2019.
  - By 2050: Net-zero emissions from business travel.
- Set specific goals for short-, medium- and long-haul flights respectively, depending on where the greatest environmental benefit can be achieved.

2.4.2 Calculation methods

- Try to use standardised calculation methods to facilitate comparisons of emissions from business travel within and between HEIs.
- Calculate emissions from business travel in carbon dioxide equivalents (CO_2e) based on science-based standard values.
  - Include emissions data from all travel paid for by the HEI in calculations: flights, hire cars, private cars, taxis, buses, ferries and other modes of transport, including machines and other vehicle.
  - Calculate air travel based on benchmarks for short-haul flights (<750 km), medium-haul flights (750–3,500 km) and long-haul flights (>3,500 km).
- If you change your calculation method, recalculate emissions from previous years for comparability. This applies to emissions from both air travel and other modes of transport. However, if emission factors are updated due to technological development, changes to energy mix or policy changes (for example, amendments to the CO_2 reduction obligation), do not recalculate old data; apply the changes from the year in which they are introduced.
- Hotel and student-related travel (exchange trips, for example) should not be included when following up business travel, although they can be included in Scope 3 when following up the HEI's total emissions.
- Request from travel service providers/internally:
  - Air travel: passenger kilometres per leg and seat class. If breaking down emissions by organisational level, this too needs to be stated.
  - Hire car/private car/taxi: firstly fuel consumption, secondly distance and type of vehicle, thirdly cost.
  - Train: passenger kilometres and country/region.
  - Bus travel: passenger kilometres for bus ticket, vehicle kilometres for coach hire, plus type of fuel.
  - Ferry travel: passenger kilometres per leg, ticket for foot passenger or car.
  - Machinery and other vehicles: fuel consumption (in litres) and type of fuel.
  - Other modes of transport: see the Swedish Environmental Protection Agency's standard template or use alternative science-based standard values.

2.4.3 Follow-up

- Follow up your goals at least once a year in conjunction with annual reporting and reporting to the Swedish Environmental Protection Agency pursuant to the Ordinance on Environmental Management in Government Agencies (SFS 2009:907). Emission data should be followed up at relevant organisational levels.

If possible, coordinate follow-up of emissions data with financial follow-up.

3. Governance and incentives

In this section, we describe the various forms that HEIs' work on sustainable meetings and travel might take, such as frameworks for governance and incentives, and decision-making stairways. We also look at alternatives to (long) journeys, such as digital meetings and hub conferences, and some different prioritisations that may be relevant before reaching decisions. Appendix 1 to this section contains a table compiling general emissions data per mode of transport and for digital meetings. The values in the table can be used for comparison and prior to decisions concerning business travel and/or modes of transport.

3.1 Introduction

Universities and university colleges are well-placed to steer meetings and business travel in a more sustainable direction. The desired effect can be obtained by combining internal policy documents, guiding activities and incentives, so that managers and staff can reach well-reasoned, sustainable decisions. Training and knowledge-enhancing activities encourage participation and engagement within the organisation.

The Ordinance on Environmental Management in Government Agencies (SFS 2009:907) requires HEIs to establish meeting and travel policies, use energy-efficient information technology, and train and inform staff to increase their knowledge and awareness of environmental considerations. In appropriation directions to universities and university colleges in 2022, the Government also emphasised the importance of working systematically to improve the environment when giving HEIs an assignment to demonstrate and describe how they were working to build on the positive environmental impact of digital working methods during the pandemic. They were also given an assignment to follow up reductions in emissions from business travel. The Swedish Transport Administration has been supporting the efforts of government agencies, including HEIs, to increase the use of virtual meetings since 2011 through the REMM project[38].

3.2 Current situation

A review[39] of HEIs' internal governance documents on meetings and travel reveals that HEIs often combine various guidelines, procedures and incentives to steer or encourage staff towards sustainable travel. Training is also common. The HEIs that have made the greatest reductions in emissions from business travel usually have a well-developed framework to support sustainable working methods.

All HEIs have internal governance documents with varying titles concerning business travel and/or meetings and travel. In general, policy is combined with more detailed rules, although at many HEIs rules are the only governance instrument.

HEIs' governance documents concerning business travel and/or meetings and travel almost always:

[38] The Swedish Transport Administration concluded the REMM project at the end of 2025.

[39] HEI Climate Network. 2025. Compilation of HEI's governance documents on meetings and travel.

- recommend travel-free meetings as the first option;
- restrict air travel to flights longer than a given distance (usually 500 km) and/or outside a specific geographical area;
- state that decisions concerning travel rest with management; and
- state that travel must be purchased via a framework agreement with a travel agent.

While decisions regarding business travel normally rest with line managers, in practice staff may have considerable discretion. At some HEIs, all business travel must be approved by management, while at others this requirement only applies to certain trips that, for example, involve high cost, large emissions, significant security risks or a considerable amount of time.

In a few cases, the HEI uses allocation keys to break down and allocate emission allowances based on the HEI's climate goals. In some cases, a sustainability analysis is required, including a forecast of the climate impact of business travel. when undertaking a new project[40].

To implement policies, rules and guideline, HEIs issue various types of guidance or arrange guiding activities that provide more practical support. Examples include:

- online information meetings for staff on sustainable meetings and travel or purchasing sustainable business travel;
- training on sustainable travel;
- a schematic decision-making stairway to promote sustainable meetings and travel (in accordance with the HEI's established goals, policies and rules, see below);
- procurement of services from specialist travel service providers, such as European rail travel;
- instituting a travel coordinator function; and
- visualisation of and feedback on statistics on completed business trips.

In addition to internal governance documents, guidelines and activities, some HEIs offer various incentives to travel by more environmentally friendly means. Incentives include permitting staff to book:

- first-class tickets or private compartments on trains; and
- additional hotel nights when travelling by train.

Some HEIs have also established internal climate funds to offer financial incentives to make more sustainable travel arrangements (see Section 4.3.3).

Experiences shared at workshops organised by the Focus Group show that incentives to travel (and meet) more sustainably are more effective when travel is centrally funded rather than funded from research grants, as in the latter case there is

[40] For example, Formas, the Swedish Research Council and Vinnova require projects to report on how they contribute to sustainable development. Horizon Europe may require sustainability to be integrated into project planning and reporting.

an inclination to choose the cheapest means of travel so that research funds can be spent on higher priorities.

3.3 Working methods

3.3.1 Framework for sustainable business travel

In combination, internal governance documents, guidelines and incentives can be mutually reinforcing and facilitate the work of HEIs to promote sustainable meetings. They can also jointly contribute to the structural and cultural changes necessary for sustainable transition.

- Governance documents set a clear frame of reference and goals, demonstrate that the transition is a matter of priority and give a mandate for change.
- Guidelines and guiding activities, including training, increase knowledge and awareness of procedures and sustainable modes of transport by translating policies and rules into practice.
- Incentives motivate behavioural change and create commitment.

A framework such as that shown in Table 2 can help to illustrate how an HEI can combine governance documents, guidance and incentives.

Table 2: Framework for sustainable business travel

Type of instrument	Measure
Internal governance document	• Ensure that internal government documents covering meetings and business travel conform to the intentions of the Paris Agreement and the HEI's climate goals (preferably based on the recommendations in these guidelines). Governance documents can also address grant applications, procurement, events and administrative support systems.
Guiding activities	• Training on sustainable meetings and travel. • Communication and information about rules and policies. • Visualisation of environmental impact/emissions from business travel. • Institute a decision-making stairway to support management and staff. • Institute a travel coordinator function at the HEI.
Incentives	• Encourage sustainable meetings and travel by, for example, investing in user-friendly video conferencing tools, allowing staff to book first-class train tickets or coordinating multiple visits. • Institute financial incentives, such as an internal climate fund. • Earmark funds for sustainable travel.

3.3.2 Decision-making stairway for managers and staff

The purpose of a decision-making stairway for sustainable meetings and travel is to make it easier for both managers and staff to reach desirable decisions about whether a trip is justified and, if so, by what means it should be undertaken. The

decision-making stairway must reflect internal goals, policies, guidelines and other decisions that the HEI has established for its meetings and business travel.

The stairway should include an assessment of whether a trip is necessary or will contribute to the development of the organisation and/or individual, and of alternative meeting arrangements. Consideration should also be given to the number of travellers and mode(s) of travel.

Integrating the decision-making stairway into the HEI's travel booking system can further facilitate sustainable choices.

Figure 2 shows an example of a decision-making stairway.

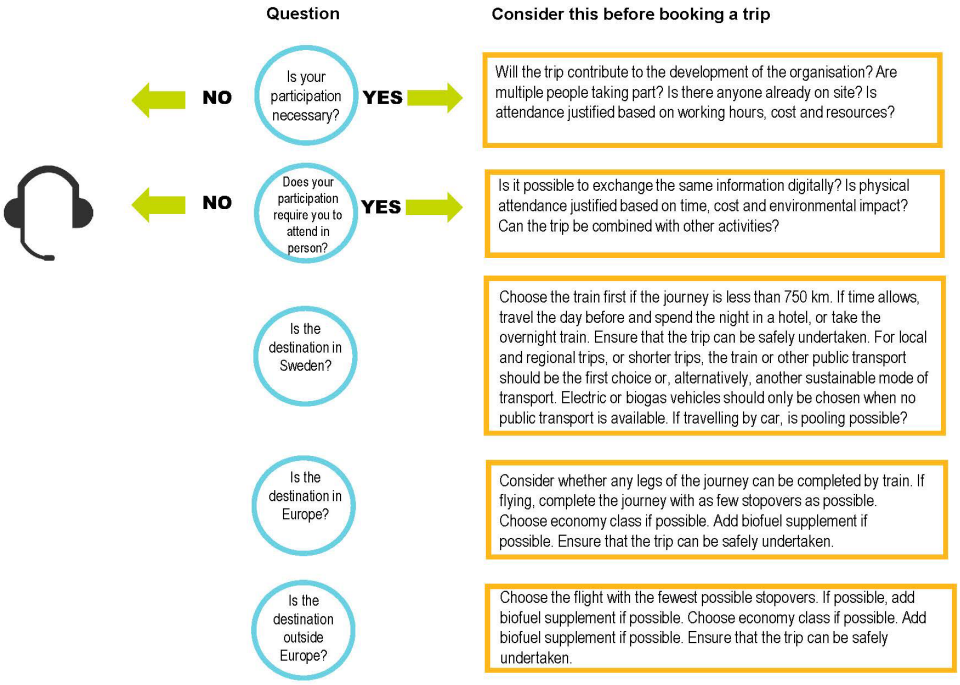

Figure 2: An example of a decision-making stairway for sustainable meetings and travel.

3.3.3 Prioritising trips

In addition to determining whether a journey is necessary (see Section 3.3.2), an HEI can establish its own priorities (either centrally or at some other organisational level) for when, and by whom, a trip should be undertaken. Examples of such priorities include:

- **Focus on research implementation**
  Trips directly related to collecting data, conducting fieldwork or other research activities have the highest priority.
- **Networking and new collaborations**
  Trips to establish new collaborations or networks have a higher priority than maintaining existing contacts.
- **Combined purposes and extended stays**
  Trips that serve multiple purposes – research, teaching and networking, for

example – and extended stays are considered more valuable that short trips with a single purpose.

- **Support to junior researchers**
  Junior researchers are prioritised to promote the acquisition of qualifications and network-building.
- **Efficient travel**
  Sending a representative instead of an entire research group reduces travel and emissions without sacrificing academic presence. Support staff who arrange digital conferences and hub conferences.

3.3.4 Alternative meeting forms

Digital meeting

While the climate impact of digital meetings is not included in reporting to the Swedish Environmental Protection Agency, the number of meetings is followed up voluntarily[41]. Digital meetings are promoted as an environmentally friendly alternative to physical meetings, mainly because they cut out travel, hence their inclusion in these guidelines.

Studies show that on average a video meeting generates between 0.15 and 1 kg of CO_2 per hour[42] depending on factors such as video quality, platform, data traffic and the energy mix of local grids.[43] Another study shows that a Zoom meeting lasting two eight-hour days generates around 0.29 kg CO_2e.[44] By way of comparison, a one-way journey by air from Stockholm to Gothenburg generates approximately 130 kg CO_2e per passenger[45]. Most of emissions from digital meetings are accounted for by the electricity consumed by data centres, network infrastructure and user's devices. These emissions can be significantly reduced by disabling video, using energy-efficient devices and choosing electricity from renewable sources[46].

These guidelines do not offer any recommendations on calculating emissions from digital meetings due to the lack of established emission factors and the fact that emissions from digital meetings are negligible compared to flying. HEIs are however encouraged to monitor this area and develop calculation methods as and when necessary.

The REMM project resulted in recommendations to Swedish government agencies concerning nurturing a "culture of sustainable travel", including supporting staff in

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[41] In order for the report to show whether digital meetings have increased as a percentage of all meetings, the figure needs to be compared to the total number of meetings held.

[42] MIT News. 2021. *How to reduce the environmental impact of your next virtual meeting* How to reduce the environmental impact of your next virtual meeting | MIT News | Massachusetts Institute of Technology

[43] Shift Project. 2019. *Lean ICT – Towards Digital Sobriety*. https://theshiftproject.org/en/article/lean-ict-our-new-report/.

[44] Stockholm University. 2022, *CO_2 footprint of Zoom meeting versus flying.* https://www.su.se/polopoly_fs/1.605056.1648040648!/menu/standard/file/CO2%20footprint%20of%20Zoom%20meeting%20versus%20flying.pdf [25.09.2025]

[45] Swedish Environmental Protection Agency. 2023. *Resvanor och klimatpåverkan*. https://www.naturvardsverket.se (25.09.2025).

[46] Shehabi, A. et al. 2016. *United States Data Center Energy Usage Report*. Lawrence Berkeley National Laboratory.

choosing a meeting form that ensures good quality[47]. REMM also published a 10-step method for improving digital meetings[48].

Hub conferences

Hub conferences offer an alternative to traditional international conferences to which the majority of attendees travel on long-haul flights. Hub conferences connect multiple physical meetings at different locations, on different continents, if need be, via digital technology. Hub conferences dramatically reduce the need for long-haul travel compared to traditional conferences, while at the same time offering a vastly more engaging social experience and greater networking opportunities that a pure digital meeting. Estimates have shown that emissions from travel to and from international conferences can be slashed by up to 80 per cent by holding a conference from hubs on different continents instead[49] [50].

3.4 Recommendations

- Create a sustainable travel culture that permeates the entire organisation, in which management is a role model and initiates dialogue concerning experiences of sustainable meetings and travel.
- Create a framework for sustainable business travel by combining internal guidelines, policy documents and incentives (based on Table 2).
- Create a decision-making stairway to support managers and staff in making sustainable decisions about meetings and travel (based on Figure 2).
- Place requirements on travel service providers to integrate and highlight the HEI's policy document on meetings and travel in their booking system, such as by visualising climate impact when booking a trip.

[47] REMM. 2024. Mötesväljaren, https://www.remm.se/motesvaljaren/ [27.08.2025].

[48] REMM. 2024. 10-stegsmetoden, https://www.remm.se/10-stegsmetoden/ [27.08.2025].

[49] Parncutt, R., Lindborg, P., Meyer-Kahlen, N., & Timmers, R. (2021). The multi-hub academic conference: global, inclusive, culturally diverse, creative, sustainable. *Frontiers in Research Metrics and Analytics*, 6, 699782.

[50] Klöwer, M., Hopkins, D., Allen, M., & Higham, J. 2020. An analysis of ways to decarbonize conference travel after COVID-19. *Nature,* 583(7816), 356–359.

What HEIs have done

The Swedish University of Agricultural Sciences (SLU) has prepared a **decision-making stairway** for staff and management for reaching decisions about whether and how a business trip should be undertaken. The stairway is consistent with the university's policies and procedures.

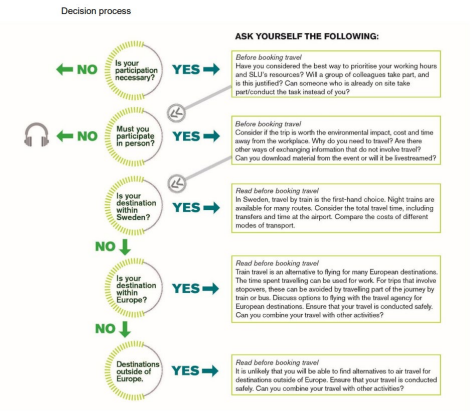

Figure 2. SLU's decision-making stairway for sustainable meetings and travel.

Researchers from Uppsala University have written the **handbook** *Brain Train: A guide to green and creative work trips.* Based on the project *#DeepTrainWork Concept Development* funded from Uppsala University's Climate Pot 2021, the handbook offers practical guidance and concrete tips on preparation, work structures, dealing with delays and new ways to think about meetings. The focus is on the train as a coworking space that facilitates "deep work", i.e., being able to concentrate deeply on a difficult task for prolonged periods of time without getting distracted. The objective is making sustainable travel choices a smart work solution.

The Fojo Media Institute at Linnaeus University has adopted a **travel policy that strictly limits air travel** and places the emphasis on climate impact. For domestic travel, the first choice must be the train; it is only permitted to fly under exceptional circumstances. In certain cases, the institute has also instituted a limit on the number of permitted trips per project. Climate and environmental impact, work environment and gender equality are considered when making bookings, and a cost-benefit analysis is performed. As a rule, public transport should be used for transfers.

Four departments of the **Faculty of Social Sciences at the University of Gothenburg** have established **local travel policies**. At three of these departments – Psychology, Social Work, and Journalism, Media and Communication – the local policy is that a manager must explicitly approve each flight. The Administration Unit has chosen to apply a quota system whereby each member of staff is permitted only one return trip by air each year. Both types of measure have succeeded in reducing air travel and thus the climate footprint of the respective departments. These changes have been positively received by staff.

4. Tools for visualising and distributing emissions

4.1 Introduction

To visualise and distribute the reductions in emissions that an HEI needs to achieve, a tool that integrates climate goals into internal governance can facilitate sustainable choices. By using these tools, HEIs can both make plain the scope of emissions and create the structural conditions for change. The tools can visualise the HEI's total emissions or emission quotas allocated to given organisational units or levels. Moreover, incentives such as internal climate exchange or climate funds are successful instruments of change.

Policy instruments make a difference if they are designed with due consideration for the organisation's conditions and staff engagement. Acceptance and participation are crucial to achieving real results and long-term change. Research shows that visualising emissions – in booking systems or emissions reports, for example – can increase awareness and elicit behavioural change[51].

4.2 Current situation

Many HEIs have mapped their greenhouse gas emissions, at least at an overall level. Business travel accounts for between 10 and 40 per cent of HEIs' greenhouse gas emissions[52] and, in many cases, over 95 per cent of these emissions come from air travel.

HEIs' point of departure for mapping emissions is usually an environmental spend analysis[53], where available combined with actual emissions data from, for example, business travel.

Climate inventories can also be used as a basis for an HEI's climate budget (in most cases using 2019 as the baseline year). Many HEIs base their annual climate statement on emissions mapping, comparing the outcome to the baseline year. A climate inventory is often critical to identifying and visualising the overall environmental consequences of an organisation's activities.

Some HEIs establish separate emissions budgets for air travel at organisational unit level. In the guidelines, these are referred to as "carbon budgets". Carbon budgets allocate emissions in the form of emission ceilings that are lowered each year in accordance with the climate goals of the Paris Agreement, or the HEIs own climate goals.

Some HEIs have also established, or have previously had, internal climate funds to offer financial incentives to make more sustainable travel arrangements (see Section 3.4).

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[51] Duan, R. & Bombara, C. 2022. *Visualizing climate change: the role of construal level, emotional valence, and visual literacy*. Climatic Change, 170(1).

[52] MLUH. 2023. Compilation of HEIs climate impact calculations.

[53] An environmental spend analysis maps the purchases that drive climate change, costs are illustrated as emissions, usually based on national environmental accounts.

4.3 Working methods

4.3.1 Climate inventory

A climate inventory can strengthen strategic environmental management and provide a basis for an HEI's climate budget and climate statement.

The inventory identifies the operational areas that generate most emissions. As a first step, organisations can use an environmental spend analysis to obtain a rough understanding of and visualise its total emissions, especially when no detailed data is available. Emissions figures (CO_2) in an environmental spend analysis are based on quotas, which in turn are based on national environmental accounts[54]. The environmental spend analysis combines cost and emissions data, with costs attributed to Scope 1, Scope 2 or Scope 3 emissions in accordance with the GHG Protocol[55].

Where actual emissions data is available, this should replace environmental spend data. Such data is often available for categories other than business travel, such as energy consumption, waste management and certain purchased goods.

If the climate inventory is visualised, it becomes a tool that can be used in planning, implementation and following up both sustainable meetings and travel and climate work in general. This is also true of the carbon budget described in the next section. Breaking down mapping and visualisation to relevant organisational levels makes the data more specific as a basis for decisions by managers and staff.

4.3.2 Carbon budget

A carbon budget is a tool for allocating emissions with the scope of the organisation's total emission budget over a given period of time. A carbon budget supplements climate goals by specifying permitted emissions during the period. It can increase understanding of the challenges and what needs to be done in the short term.

A carbon budget should be formulated with science-based emission targets expressed as CO_2e. The total carbon budget can be distributed to various organisational units based on relevant indicators such as FTEs, historical emission levels or the nature of operations. Other indicators such as the percentage of staff conducting research, percentage of doctoral students or percentage of research funding may also be relevant.

The budget facilitates the follow-up of emissions on a more detailed and local level, and it defines each unit's responsibility in relation to the organisation's overall climate goals. This makes reducing emissions a shared and specific concern supported by the organisation's structure. One prerequisite for a successful carbon

[54] Environmental accounts provide a systematic description of the relationship between the environment and the economy. Statistics Sweden published environmental accounts annually. https://www.scb.se/en/finding-statistics/statistics-by-subject-area/environment/environmental-accounts-and-sustainable-development/system-of-environmental-and-economic-accounts/ [30.06.2025].

[55] The Greenhouse Gas (GHG) Protocol establishes comprehensive global standardised frameworks to measure and manage greenhouse gas (GHG) emissions from private and public sector operations, value chains and mitigation actions. Scope 1 covers direct emissions from sources that are owned or controlled by the organisation, such as its own vehicles; Scope 2 covers indirect emissions from the generation of purchased energy; and Scope 3 covers other indirect emissions that are the consequence of the organisation's activities, such the purchase of goods and services, waste management and business travel.

budget is that staff have access to support and structures that enable them to make sustainable choices when booking meetings and travel, and that these have the support of management. Moreover, if the follow-up of the carbon budget is coordinated with routine economic follow-up, it can increase the engagement of the HEI's senior management.

4.3.3 Internal climate fund

An internal climate fund is a tool for encouraging emissions reductions within an organisation by creating financial incentives to make climate-smart choices. More precisely, it involves a climate exchange mechanism that imposes an internal surcharge on, for example, high-emission modes of transport like air travel, which is paid into a common internal climate fund that can be used to finance internal climate transition measures, such as subsidising more expensive first-class or private compartment tickets to incentivise train travel, or investments in technology to encourage more sustainable meetings.

An internal climate fund also makes plain the costs associated with emissions. By pricing flights internally, organisational units can be encouraged to reach more sustainable decisions concerning meetings and travel.

In its guidelines[56], the Swedish Environmental Protection Agency highlights the potential of internal climate funds as a tool for government agencies to reduce their climate impact, on condition that the fund is transparent and legally correct, and that the funds are used solely for measures within the scope of the agency's assignments and budget framework. The guidelines also propose how HEIs can go about establishing a climate fund.

4.4 Recommendations

- Map emissions and use digital tools to visualise climate impact.
- Prepare emissions budgets and follow up emissions at relevant organisational levels.
- Create an internal climate fund to promote sustainable business travel.

[56] Swedish Environmental Protection Agency. 2020. *Vägledning om interna klimatfonder i statliga myndigheter.*

What HEIs have done

In the project FLIGHT, Researchers at KTH Royal Institute of Technology visualise emissions using poker chips, with each member of staff's travel represented by a pile of chips. This demonstrated that 80 per cent of emissions were attributable to approximately 20 per cent of staff, raising questions and discussion about individual and collective choices. The project also highlights the need for systematic incentives, such as carbon budgets, to promote sustainable travel habits.

Stockholm University has developed its own app in which individuals and departments receive direct feedback on the emissions from their business trips. This is viewed as a contributory factor to the university's success in reducing emissions from air travel by around 35 per cent between 2019 and 2024. This reduction equates to over 2.35 million tonnes CO_2e, or a return flight to Paris for every employee of the university.

The University of Borås has instituted a carbon budget for air travel. This involves allocating an annual carbon ceiling to each organisational unit based on the university's goal of halving emissions by 2030 compared to 2019.
The budget is followed up by controllers at each organisational unit. The results are discussed twice a year in the Vice-Chancellor's dialogue meetings and with management. Support is provided by a decision-making guide, statistics from travel service providers and clear performance indicators.

The Swedish University of Agricultural Sciences has instituted a climate fund to reduce the university's climate impact. A surcharge is placed on each one-way flight, the size of which depends on the nature of the trip. Payments from the climate fund are assessed based on several allocation criteria and decisions concerning funding are always based on the purpose of the fund: to reduce climate impact within the organisation. This work is done by a steering committee. Thus far, just over SEK 2 million per year has been available in the annual call for funding[57].

[57] SLU 2025. SLU climate fund, Staff Web. https://internt.slu.se/en/support-services/administrative-support/environment/slus-climate-fund/ (21.09.2025).

Appendix 1

Overview of greenhouse gas emissions per passenger kilometre and vehicle kilometre from different modes of transport, and greenhouse gas emissions per person attending digital meetings. Emissions from air travel are based on seat class general (unknown class) from Table 1 in the guidelines.

Mode of transport	**≈ gram CO_2e/h CO_2e/pkm, CO_2e/vkm**	**Comments and examples of variables**
Digital meeting (audio)	6–40 g CO_2/h	Lower impact without video.
Digital meeting (video)	150–1000 g CO_2/h[58]	Varies depending on video quality and network.
Bicycle	5 g CO_2e/pkm [59]	Mainly from manufacture.
Bicycle (electric)	13 g CO_2e/pkm [60]	Mainly from manufacture.
Train (Sweden)	1–4 g CO_2e/pkm	Varies with electricity source and train type.
Train (EU)	18–91 g CO_2e/pkm	Varies with electricity source and train type.
Bus (electric)	7 g CO_2e/pkm	Varies with capacity utilisation and electricity source.
Bus (HVO100)	25 g CO_2e/pkm	Varies with capacity utilisation, origin of raw materials and production process.
Bus (diesel)	108 g CO_2e/pkm	Varies with capacity utilisation, fuel mix and vehicle type.
Car (electric, in Sweden)	12 g CO_2e/vkm	Varies with electricity source.
Car (petrol)	173 g CO_2e/vkm	Varies with vehicle type, fuel and driving behaviour. Shared car = lower emissions per person.
Car (diesel)	185 g CO_2e/vkm [61]	Varies with vehicle type, fuel and driving behaviour. Shared car = lower emissions per person.
Domestic flight	131 g CO_2e/pkm	The shorter the flight route, the higher the pkm.
International flight within Europe	131 g CO_2e/pkm	Some high-altitude effect.
International flight outside Europe	147 g CO_2e/pkm	High-altitude effect.

[58] MIT NEWS. 2021. *How to reduce the environmental impact of your next virtual meeting* https://news.mit.edu/2021/how-to-reduce-environmental-impact-next-virtual-meeting-0304 [25.09.2025]

[59] Schutt, T. 2022. *How Much Carbon Does Cycling Really Save?* Stanford University, PH240 coursework: http://large.stanford.edu/courses/2022/ph240/schutt2/ [25.09.2025]

[60] Polytechnique Insights. 2023, *What is the carbon footprint of electric bikes*? https://www.polytechnique-insights.com/en/columns/energy/what-is-the-carbon-footprint-of-electric-bikes/ [25.09.2025]

[61] Swedish Environmental Protection Agency 2024. *Klimatverktyg transporter – statliga myndigheter* https://www.naturvardsverket.se/48f85a/contentassets/1224aae0cb7c48138c68f1b6c55e00d4/klimatverktyg-transporter-statliga-myndigheter-snv-host-2024-final8.xlsx [25.09.2025]

Appendix 2

Below are some standard values for emissions from air travel in the years 2019, 2023 and 2024. To calculate emissions from other years, please refer to the model in these guidelines, which are attached in a separate Excel file.

2019

Seat class	**Short-haul < 750 km**	**Medium-haul 750–3,500 km**	**Long-haul > 3,500 km**
Economy	*0.139*	*0.139*	*0.150*
Economy plus	*0.178*	*0.177*	*0.188*
Business	*0.210*	*0.232*	*0.401*
First class	*0.420*	*0.494*	*0.610*
General (unknown class)	0.141	0.143	0.163

2023

Seat class	**Short-haul < 750 km**	**Medium-haul 750–3,500 km**	**Long-haul > 3,500 km**
Economy	*0.131*	*0.131*	*0.142*
Economy plus	*0.178*	*0.174*	*0.175*
Business	*0.200*	*0.220*	*0.375*
First class	*0.429*	*0.528*	*0.578*
General (unknown class)	0.133	0.133	0.150

2024

Seat class	**Short-haul < 750 km**	**Medium-haul 750–3,500 km**	**Long-haul > 3,500 km**
Economy	*0.129*	*0.129*	*0.141*
Economy plus	*0.170*	*0.177*	*0.174*
Business	*0.197*	*0.215*	*0.369*
First class	*0.425*	*0.522*	*0.578*
General (unknown class)	0.131	0.131	0.147