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Integrated Climate Action Concept

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Foreword

Climate action can only be achieved together. The University of Oldenburg has been acting according to this principle for years and has not lost sight of the challenges of the climate crisis, even in times of change.

Less than a year before the Lower Saxony Climate Act was passed in response to this escalating climate crisis, the “Climate Neutral University” working group began its work in 2020 with regular workshops and discussions. Accordingly, the climate-neutral state administration resulting from the law is not only a requirement for the University of Oldenburg, but the confirmation of the highly committed efforts of its students and employees. Since 2016, “environment and sustainability” has already been one of the three central guiding themes of the university profile. We therefore understand our contribution to climate action not as a reaction to a climate crisis, but as a permanent task for society as a whole, in which we would like to actively and specifically contribute with the help of the resources available to us as a university. This includes research, teaching and learning, university administration and university management in equal measure. The present climate action concept of the University of Oldenburg has developed a catalogue of measures with the goal of achieving climate neutrality by 2030. Examples include the integration of research projects, feasibility studies for renewable energies, the promotion of bicycle infrastructure or the expansion of Green Erasmus funding opportunities.

A large number of people were directly and indirectly involved in the preparation of this climate action concept, and we would like to express our special thanks to them. Our climate protection manager Anna Sarah Krämer and the members of the “Climate Neutral University” working group have made the most visible contribution. In addition, numerous other actors have been involved, for example, in events and workshops, submitted suggestions by e-mail or evaluated and provided data in addition to their work at the university. The great participation, interest and support from all areas have shaped and enriched the entire process. Building on these experiences, the implementation of the measures will also be discussed and supported as a joint task.

We are looking forward to working together as a university to achieve the ambitious goal of climate neutrality in 2030!

Prof. Dr. Ralph Bruder
President

Jörg Stahlmann
Vice President for Administration and Finance

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1 Introduction & project description

The development of an integrated climate action concept is the result of a project that has been funded by the federal government (Federal Ministry for Economic Affairs and Climate Action) within the framework of the Local Authorities Guideline. The aim of the climate action concept is “to identify short, medium and long-term goals and measures to reduce greenhouse gas emissions and thus help achieve the national climate action goals at a local level”.

(source: Local Authorities Guideline)

The project was applied for at the University of Oldenburg in January 2021 and project work started on 01/06/2021. The application for funding for the work of the cross-functional research group (Climate-neutral university) was submitted. The founding of the research group was preceded by various university initiatives that were launched or strengthened as a result of the strong public profile of the climate movement in 2019. In spring 2020, for example, the student representatives in the University Senate submitted a motion calling for the university to become carbon-neutral by 2030. Once the motion had been passed with unanimity in the University Senate, it was decided to establish a low-threshold research group to examine further implementation possibilities. Furthermore, these initiatives are driven by a broad commitment in the university community in the areas of research, teaching and administration. The creation of a climate action concept integrated with the associated climate action management therefore also involves consolidating the existing climate action activities at the University of Oldenburg.

This document is an abridged version of the climate action concept. The full version can be accessed on the University of Oldenburg intranet.

› **uol.de/en/climate-action-concept**

2 Analysis of the current situation

This chapter outlines the status quo of climate action activities to date in qualitative and quantitative terms. This includes the energy footprint and greenhouse gas emissions, which were prepared by the external service provider TARA Ingenieursbüro GmbH in Varel.

2019 and 2020 were chosen as the base years for assessing the current situation. Due to the huge influence of the measures taken to combat the coronavirus pandemic, 2020 could not be reliably used as a starting year. Both years were therefore analysed and assessed to also illustrate the effect of the coronavirus measures on the university's GHG emissions as the sharp reduction from 2019 to 2020 is evident.

A detailed description of the activities in the area of research, teaching and administration can be found in the full version of the concept and in the University of Oldenburg's third sustainability report.

2.2 Energy footprint

The University of Oldenburg's (UOL) energy footprint and greenhouse gas emissions form the starting point for the integrated climate action concept and the opportunities and measures established. The energy footprint is based on the end-user principle, whereby the data is composed of commercial data (energy consumption after billing by the utility company) and data from sub-meters (electricity and heat).

The energy footprint is primarily based on all three campuses of the University of Oldenburg (UOL) together.

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— Campus Haarentor (incl. the botanical garden)
— Campus Wechloy
— Campus Wilhelmshaven

Energy supply and consumption is also shown for the individual sites, meaning that a breakdown by campus is also possible.

Energy sources at the University of Oldenburg include natural gas and electricity. Solar panels on the roofs produced electricity at the Haarentor and Wechloy campuses for their own consumption during the assessment period. A cogeneration unit was also operated at the Wechloy campus during the assessment period to produce electricity and heat.

2.2.1 Energy supply

	Assessment year 2019	Assessment year 2020
Electricity supply energy provider	**18,696**	**13,232**
Campus Haarentor	8,544	6,952
Campus Wechloy	9,477	5,603
Campus Wilhelmshaven	6,7	6,1
Botanical garden	58	66
Gas supply energy provider	**28,642**	**33,828**
Campus Haarentor	12,044	11,287
Campus Wechloy heating system	14,893	10,408
Campus Wechloy cogeneration unit	1,3	10,409
Campus Wilhelmshaven	9,6	9,8
Botanical garden	6,5	7,5
Total energy supply	**47,338**	**47,060**

Table 1 Energy supply in MWh/a

2.2.2 Energy consumption

	Assessment year 2019	Assessment year 2020
Electricity supply energy provider	**18,696**	**13,232**
Campus Haarentor	8,544	6,952
Campus Wechloy	9,477	5,603
Campus Wilhelmshaven	6,7	6,1
Botanical garden	58	66
Electricity production PV	**2,1**	**4,2**
Campus Haarentor	2,1	3,0
Campus Wechloy	1	1,2
Electricity production cogeneration unit	**33**	**3,735**
Campus Wechloy	33	3,735
Heat production heating system	**24,679**	**20,244**
Campus Haarentor	10,301	9,647
Campus Wechloy	13,062	9,161
Campus Wilhelmshaven	7,6	8,7
Botanical gardens	5,1	6,8
Heat production cogeneration unit	**31**	**4,232**
Campus Wechloy	31	4,232
Total energy consumption	**43,731**	**41,844**

Table 2 Energy consumption in MWh/a

2.3 Greenhouse gas emissions

Note: the text for the description of the system boundaries has been written by TARA Ingenieursbüro.

2.3.1 System boundaries

The greenhouse gas emissions are calculated according to the international standard of the Greenhouse Gas Protocol. This includes the classification into scope 1, 2 and 3, which can be subdivided into direct and indirect emissions.

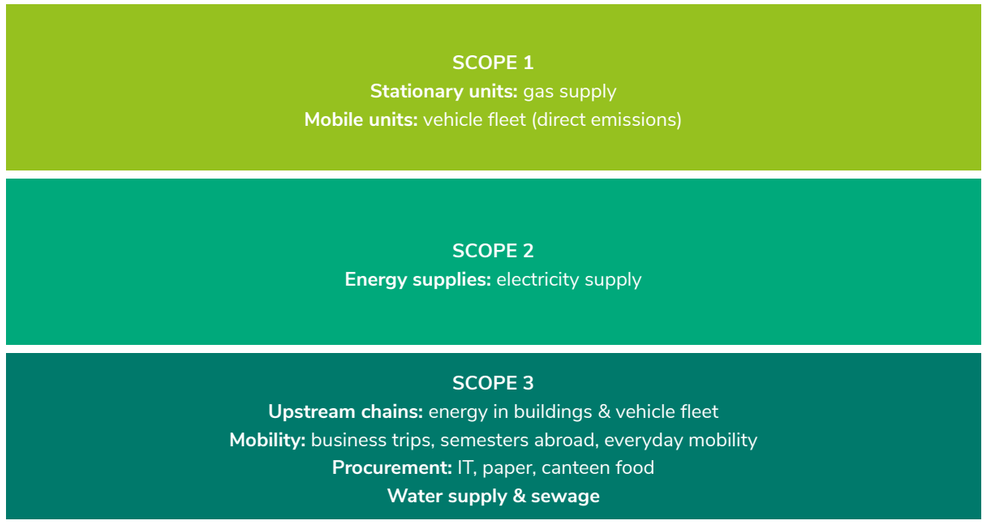

Figure 1 System boundaries of the GHG emissions according to scope 1-3

Scope 11 includes all sources of emissions that are directly emitted by the university. This includes, but is not limited to, the combustion process of natural gas for heat generation in stationary units as well as the combustion process of fuels in the company vehicle fleet as mobile units.

Scope 2 accounts for all emissions that are indirectly emitted by the university from purchased energy. This includes electricity supply from the public grid or district heating. According to the GHG Protocol, it is advisable to calculate emissions from electricity procurement using both the location-based approach and the market-based approach. The location-based approach takes the regional or national energy mix into account to enable comparability. The national energy mix is used for the University of Oldenburg to allow for a nationwide comparison with other universities. Data specific to the product or electricity tariff can be taken into account in the market-based approach, such as the green electricity product.

Scope 3 accounts for other indirect emissions, such as business trips and travelling to study abroad as well as the procurement of IT equipment or paper products and food for the canteen, water supply and sewage. Calculating the emissions for the procurement of IT equipment or paper products as well as food includes the energy-related upstream manufacturing process.

The GHG Protocol specifies that the upstream chains of energy purchases are also accounted for in Scope 3. For building energy and fuels, emission factors are therefore selected that include the upstream chain and show it separately. Therefore, for example, even for an installed PV system whose electricity consumption does not cause any emissions, a small amount is incurred in Scope 3 for the upstream chain, i.e. the manufacture of the PV system for electricity production.

Note on university catering: The university catering service, which is housed on the university's premises, is run by the Studierendenwerk Oldenburg (SWO) and thus actually lies outside the university's system boundaries. However, given that the emissions in this sphere of activity are closely linked with the university's activities, they have been included in this assessment of greenhouse gases. Following consultation with the Studierendenwerk, this sphere of activity will no longer be included in future updates of the assessments but will be pursued thematically with the SWO. This also applies to the measures that were gathered as part of the action workshops for university catering but not listed in the catalogue of measures.

2.3.2 Total emissions

The total emissions attributable to the University of Oldenburg according to the principle of causation for 2019 and 2020 within the set system boundaries and with the available database are set out in the following table.

Total emissions	Assessment year 2019	Assessment year 2020
National energy mix	21,378	14,528
Green electricity product	12,838	9,054

Table 3 Total emissions in t CO_2/a for 2019 and 2020

2.3.3 Emissions by spheres of activity

Overview

The table below shows a breakdown of emissions by sphere of activity.

Sphere of activity	Assessment year 2019	Assessment year 2020
Building energy	14,430	12,318
Everyday mobility*	4,528	1,129
International mobility & vehicle fleet	1,603	5,0
Procurement	3,8	3,4
University catering	4,9	1,8

Table 4 Emissions by sphere of activity in t CO_2/a for 2019 and 2020

* The values for the field of everyday mobility are based on an inexact database and extrapolation. The values were nevertheless included in the GHG emissions due to the importance of this sphere of activity.

A detailed view of the GHG emissions and a compilation of additional indicators can be found in the full version of the concept.

› **uol.de/en/climate-action-concept**

3 Potential analysis & scenario development

The potential analysis presents the possible opportunities for the university to reduce emissions in the various spheres of activity. In the scenario development, various paths show how the course of the university's emissions evolves through the implementation of various ambitious measures. These two essential components were produced again by TARA Ingenieurbüro. They are based both on documents that were already available in the university (especially in Facility Management) and on extensive inspections of the sites at Wilhelmshaven, Haarentor and Wechloy, which were accompanied by Division 4. These inspections took place in February 2022 and the potential analysis and scenario development were produced at the end of February / beginning of March.

Note: At this point, it should be noted that at the time of preparing these components, the extent and development of the Russian war of aggression in Ukraine could not be fully assessed. The resulting dynamics in terms of natural gas, previously classified as a transitional energy, and the trend in energy prices and availability could not be foreseen at the time and are therefore not reflected in the potential analysis and scenario development.

3.1 Potential analysis

Note: The following content and text on the potential analysis was written by TARA Ingenieursbüro.

Thanks to a list of spheres of activity and roughly outlined measures, the possibilities for a path to reduce greenhouse gas emissions are presented in two scenarios in order to achieve carbon neutrality by 2030, as well as in a reference scenario (without any efforts to mitigate climate change).

The following table sets out the savings potentials with respect to the university's greenhouse gas emissions based on the energy footprint and greenhouse gas emissions as well as the on-site data collection. The savings potentials are illustrated in relation to the university's total greenhouse gas emissions in 2019 and taking the national energy mix into account.

The percentage of the building energy savings potential is calculated from the technical conditions of the various campuses and is summed up by weighting the area of the campuses to an average savings potential for the entire university.

Sphere of activity	Reference scenario	Climate action scenario I	Climate action scenario II
Percentage of total GHG emission savings	**14,8%**	**35,6%**	**67,9%**
Sphere of activity: building energy	**10,9%**	**23,7%**	**41,1%**
Natural gas	2,5%	11,5%	25,4%
– Heat production energy effi-ciency	0,04%	0,24%	0,24%
– Waste heat utilisation in cool-ing	2,14%	2,14%	2,14%
– Use of renewable energy for heating	0,00%	7,21%	16,81%
– Building envelope	0,31%	1,87%	6,24%
Electricity	8,37%	12,23%	15,63%
– Ventilation technology energy efficiency	2,14%	4,28%	7,14%
– Cooling technology energy ef-ficiency	1,30%	1,30%	1,30%
– Lighting energy efficiency	4,93%	6,57%	7,04%
– Use of renewable energy for electricity	0,00%	0,08%	0,15%
Sphere of activity: mobility	**3,37%**	**9,62%**	**23,93%**
– Everyday mobility	2,17%	7,01%	21,09%
– Vehicle fleet	0,05%	0,15%	0,20%
– Semester abroad	0,07%	0,16%	0,24%
– Business trips	1,08%	2,30%	2,40%
Sphere of activity: procurement	**0,61%**	**2,33%**	**2,90%**
– IT products	0,00%	0,35%	0,60%
– Paper products	0,00%	0,04%	0,12%
– University catering	0,61%	1,92%	2,16%
– Water / sewage	0,00%	0,01%	0,03%

Table 14 Savings potentials by sphere of activity and scenario in %

The following overview shows the spheres of activity in descending order of savings potential, which were identified for the entire University of Oldenburg. The savings potential is roughly outlined and measures for implementing the savings potential are listed as examples in a brief description.

3.1.1 Building energy

3.1.1.1 Natural gas savings potential

Heat production energy efficiency

In general, the heat generation systems are in a good energy-saving condition. Nevertheless, energy savings can be made in some areas. By switching from centralised water heating to decentralised instantaneous water heaters in areas with low hot water demand. This is already planned for the Haarentor campus and the old building in Wilhelmshaven, meaning that energy can be saved and thus greenhouse gas emissions reduced. In addition, the heating distribution pipes should be constantly optimised and kept in a good state of insulation in order to reduce losses in heating distribution.in order to reduce losses in heating distribution.

Waste heat utilisation in cooling

As a result of digitalisation, the demand for larger data centres is constantly growing, and this is also the case at the University of Oldenburg. The data centres need to be cooled, which requires a growing need for cooling systems that generate waste heat. Using waste heat to heat up buildings constitutes a great savings potential, as natural gas can be saved in this way.

Switching energy source (natural gas to electricity)

Natural gas-fired cogeneration units have been put into operation at all campuses in recent years to supply buildings with heat. As they are state of the art, they have little savings potential in terms of energy efficiency.

Nevertheless, with a view to a carbon-neutral future, gas-fired cogeneration units can only be a technology to bridge the gap. Therefore, switching the energy source to electricity presents great savings potential in terms of reducing greenhouse gas emissions. It can be assumed that as a result of the increasing proportion of renewable energies in the energy mix, the emission factor will constantly decrease, and electricity will become carbon-neutral in the future.

Since the cogeneration units have only been installed in recent years and are assumed to have a service life of at least 20 years, they will in all probability remain in service beyond the target year 2030, meaning that switching the energy source to electricity is not considered in the potential analysis.

Use of renewable energies for heating

Although carbon-neutral heat supply cannot be achieved with gas-fired cogeneration units, switching to biogas has great savings potential in terms of reducing greenhouse gas emissions. Increasing the proportion of biogas to 40% can save up to 1,500 tonnes of CO_2e, and increasing it to 80% can save 3,560 tonnes of CO_2e a year.

Building envelope

Renovations to the building envelope reduce heat loss through the building envelope, which can save natural gas. We recommend keeping and maintaining all existing university buildings in a good structural and energy-saving condition.

Campus Haarentor

The buildings at the Haarentor campus have an average savings potential of 50%. Around 1/3 of the buildings on the campus are in a good or already renovated or partially renovated condition. The building complex A01-A04 has particularly great savings potential due to single-glazed windows in the stairwell and the unrenovated building facade. Large buildings such as the library and canteen have also not been renovated since 1982 and thus have great savings potential.

Campus Wechloy

Less than 1/3 of buildings at the Wechloy campus are renovated or partially renovated. Overall, the structural and energy-saving condition of the building stock can be positively assessed thanks to many new-builds. Older buildings such as W01, W02, W03 and W04 have great savings potential due to a lack of facade insulation. The greenhouse W07 (biological outdoor spaces) also have increased savings potential due to single-glazed windows. Overall, the Wechloy campus has an average savings potential of around 50% in the area of the building envelope.

Campus Wilhelmshaven

The Wilhelmshaven campus extends essentially over the main building of the ICBM (new building and old building) as well as four auxiliary buildings, which house accommodation and seminar rooms.

The auxiliary buildings WHV2, WHV2A, WHV3 and WHV3A are in an average energy-saving condition. Due to a damp problem in the basement, the savings potential is estimated to be high in all four buildings.

The main buildings ICBM WHV1 and WHV1A are in a good structural condition; only the windows in the old building have savings potential due to slight gaps. Overall, the Wilhelmshaven campus has an average savings potential of 10% in the area of the building envelope.

3.1.1.2 Electricity savings potential

Ventilation systems energy efficiency

Overall, the ventilation systems are in a well-optimised condition. In some cases, outdated systems offer potential for savings. Most of the systems are controlled by a frequency converter, have heat recovery and are connected to the central building management system.

Campus Haarentor

The ventilation system in the library has increased savings potential. The system is already scheduled to be replaced in 2023. The ventilation system in the sports hall has further savings potential. It is not controlled by a frequency converter and the heat recovery has been faulty for many years. The savings potential of this system is estimated at 40 to 60%.

Campus Wechloy

Taking all the ventilation systems at the Wechloy site into account, it is estimated that there is a savings potential between 40 and 60%. Many systems built in 1986 such as in the equipment rooms TZ04, TZ07, TZ09 and TZ11 have increased savings potential in particular because of the large volume flows.

Campus Wilhelmshaven

The Wilhelmshaven campus has two ventilation systems. One of the two was installed when the new ICBM building was built in 2019. It is therefore state of the art and has no particular savings potential. The ventilation system in the old ICBM building is severely outdated and has great savings potential. The system is not controlled by a frequency converter and runs at full capacity. We recommend replacing the system in the short term. Overall, the savings potential in the area of the ventilation systems at the Wilhelmshaven site is estimated at 50%.

Cooling units energy efficiency

The cooling units are in a good energy-saving and structural condition at all campuses and only have low savings potential.

Lighting energy efficiency

Replacing fluorescent lamps with LED technology has great savings potential, especially in rooms with a long lighting time, such as traffic areas (hallways and stairwells) as well as in office spaces or seminar rooms and lecture halls. LED technology has already been installed in many parts of the university, meaning that the savings potential for the university is estimated at 30% if there were a complete switchover to LED technology.

Particularly great savings potential was identified in the following buildings where LED technology is not yet used:

Wechloy

- W00 energy laboratory,
- W08 wooden building,
- W08A vehicle shelter,
- W09 stable building,
- W10 farmhouse,
- W11 neutralisation,
- W12 farmhouse,
- W13 steel hall (workshop).

Wilhelmshaven

- WHV1 ICBM WHV Schleusenstraße,
- outdoor lighting

Overall, we recommend replacing all lighting with LED technology gradually.

Use of renewable energies for electricity

The university already has a variety of PV systems spread out over the campuses, meaning that almost all of the suitable space has already been used. Nevertheless, we recommend pushing ahead with the expansion of further PV systems and, if necessary, create suitable spaces, such as a roof over parking spaces or also bicycle stands. This is because the electricity produced from PV systems is almost carbon-neutral, which means that less electricity has to be supplied from the grid (national energy mix).

3.1.2 Mobility

3.1.2.1 Everyday mobility savings potential

Everyday mobility is an area that the university can only influence to a limited extent owing to the individual mobility habits of university members. The university can provide structural and, if appropriate, financial incentives to promote everyday mobility that is as low in emissions and sustainable as possible. Among other things, this includes a job ticket for employees and a semester public transport pass for students. Both are already established in the university. The charging infrastructure on campuses should be expanded to make driving an electric car a more attractive prospect.

The most environmentally friendly form of transport is cycling. It is therefore recommended to introduce measures to make the campuses as bicycle friendly as possible and, for example, provide a bike rental system, enough bicycle stands or "bicycle first aid" equipment (bike pumps, repair set, etc.).

3.1.2.2 Vehicle fleet savings potential

The savings potential for the university's own vehicle fleet is deemed to be high. The fleet currently consists of a total of 23 vehicles, two of which are electrically powered and all the others are internal combustion engines.

Converting vehicles with internal combustion engines to electrically powered vehicles has great savings potential. It should be ensured that the electric cars can be charged with electricity from sustainable energy sources (carbon-neutral electricity). This enables up to a 100% reduction in emissions emitted by the vehicle fleet to date.

Another savings potential involves downsizing the university's own vehicle fleet and switching to sharing models. Currently, the Haarentor campus already has three to four permanent parking spaces provided by the car-sharing provider cambio. Further savings potential can be achieved by extending parking spaces to the Wechloy campus and offering attractive rates for students and employees.

Although the use of car-sharing vehicles does not reduce the direct emissions from miles travelled, emissions caused by the production of a new vehicle can be avoided. As the manufacturing process of vehicles is not considered in the university's carbon footprint, no savings potential is shown for this. Here too, electric vehicles should be preferred to those with internal combustion engines.

3.1.2.3 Savings potential for business trips and semesters abroad

In general, we recommend using environmentally friendly means of transport wherever possible on international trips for business and semesters abroad. Where feasible, domestic flights should be replaced by train journeys. A declaration of undertaking to voluntarily avoid short-haul flights under 1,000 km has already been established in the university. This is considered a good approach and should be emphasised in communication. Moreover, further savings potential can be realised by tightening travel regulations.

The coronavirus pandemic has shown that online events can be a good alternative to in-person events, meaning that greenhouse gas emissions in the transport sector in particular can be reduced. It is therefore recommended to prioritise online meetings over in-person meetings wherever this is possible from an organisational standpoint.

However, if an international trip is planned, an internal carbon price can, for example, be a good way to compensate for emissions within the university.

3.1.3 Procurement

3.1.3.1 IT products

We recommend optimising the data collection of the university's annually procured products in order to be able to identify the need for action or the potential for action more precisely. The data list for creating the 2019/2020 carbon footprint turned out to be inconsistent in the product name, assignment of the product type and the annual number of products purchased.

It also turned out that every new employee is provided with new and individual IT equipment. Due to the temporary contracts at the university, the fluctuation also results in an increased usage of this IT equipment. In some cases it is unclear what happens with the equipment once the employment contract has come to an end. The university currently has no collection point for IT products to pass them on to new employees. This is a clear savings potential for reducing greenhouse gas emissions. We recommend purchasing fewer new products and promoting the re-use of IT products.

Most devices used in the university are the contracting party's products. In the event of a defect in a device, this can be remedied within the warranty period via the framework contract. If a repair is required after the warranty period, there is no competent person within the university who might be able to undertake the repair. It is not uncommon for the device to then be disposed of and a replacement device purchased.

In order to avoid purchasing new devices where only one component is faulty, alternative solutions should be sought here, such as cooperating with repair cafes.

3.1.3.2 Paper products

Most office spaces in the university have single workstation printers. Abolishing single workstation printers and setting up more central printers can be expected to bring about a reduction in the amount of paper consumed. In order for the university to reduce paper on a greater scale, paperless working concepts should be examined to see if they are applicable to the university.

3.1.3.3 University catering

Note: The sphere of activity of university catering has been excluded from the catalogue of measures at the request of the Studierendenwerk Oldenburg. This sphere of activity is still included in the potential analysis and is addressed here for the sake of completeness. The same applies to the illustration of the scenario development (see Chapter 3.2).

The university is well positioned in terms of data collection of food purchases. Seasonal and local food is purchased, and wherever financially feasible, organic products are used.

There is potential to reduce greenhouse gas emissions by decreasing the amount of dishes containing meat, especially beef products, or avoiding them altogether. Currently, at least one meat dish is served in the canteen every day. Once a month, a "Veg Me Up!" day takes place in the canteen with only meat-free dishes served, and vegan cakes are sold every Tuesday. We recommend highlighting vegan or vegetarian alternatives and making them a more attractive option. A carbon price could also be introduced for meat dishes, guaranteeing internal compensation (if it is impossible to go without meat altogether) and making the vegan or vegetarian alternative more appealing.

3.1.3.4 Water / sewage

Water consumption only causes a small amount of the university's total greenhouse gas emissions. Nevertheless, care should always be taken to keep water consumption as low as possible. For example, taps that turn off automatically or the widespread use of aerators can help achieve this.

3.2 Scenario development

Note: The following content and text on the potential analysis was written by TARA Ingenieursbüro.

The potential analysis was used to create a reference scenario (trend development without any efforts to mitigate climate change) and two climate action scenarios I and II (reduction of GHG with the implementation of a consistent climate action policy). When developing the potentials and scenarios, both the goal of carbon neutrality and the exemplary role of the University of Oldenburg as a public institution are to be taken into account. The values for 2019 and 2020 are based on the greenhouse gas emissions. Here too, the huge impact of the coronavirus pandemic becomes clear, whereby the emission values go up again for 2022. The values from 2021 onwards were interpolated taking into account the identified potentials.

Note: in view of the planned modification of the climate action goals in the coalition agreement of the newly formed state government, only climate action scenario II is consistent with the new objectives taking into account the green electricity products.

3.2.1 Scenarios taking the national energy mix into account

Year	**2,19**	**2,20**	**2,21**	**2,22**	**2,23**	**2,24**
Reference scenario	21,378	14,528	21,061	20,744	20,427	20,110
Climate action scenario I	21,378	14,528	20,994	20,609	20,070	19,531
Climate action scenario II	21,378	14,528	20,652	19,925	18,907	17,889

Year	**2,25**	**2,26**	**2,27**	**2,28**	**2,29**	**2,30**
Reference scenario	19,793	19,475	19,158	18,841	18,524	18,207
Climate action scenario I	18,762	17,992	16,838	15,683	14,529	13,759
Climate action scenario II	16,436	14,982	12,801	10,621	8,440	6,864

Table 15 Scenarios (national energy mix) in t CO_2e/a

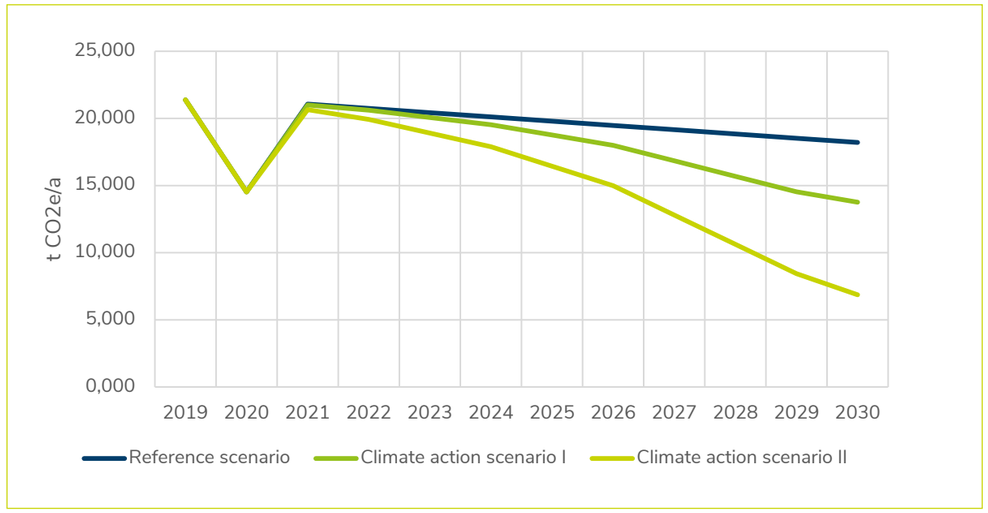

Figure 2 Scenario development taking the national energy mix into account

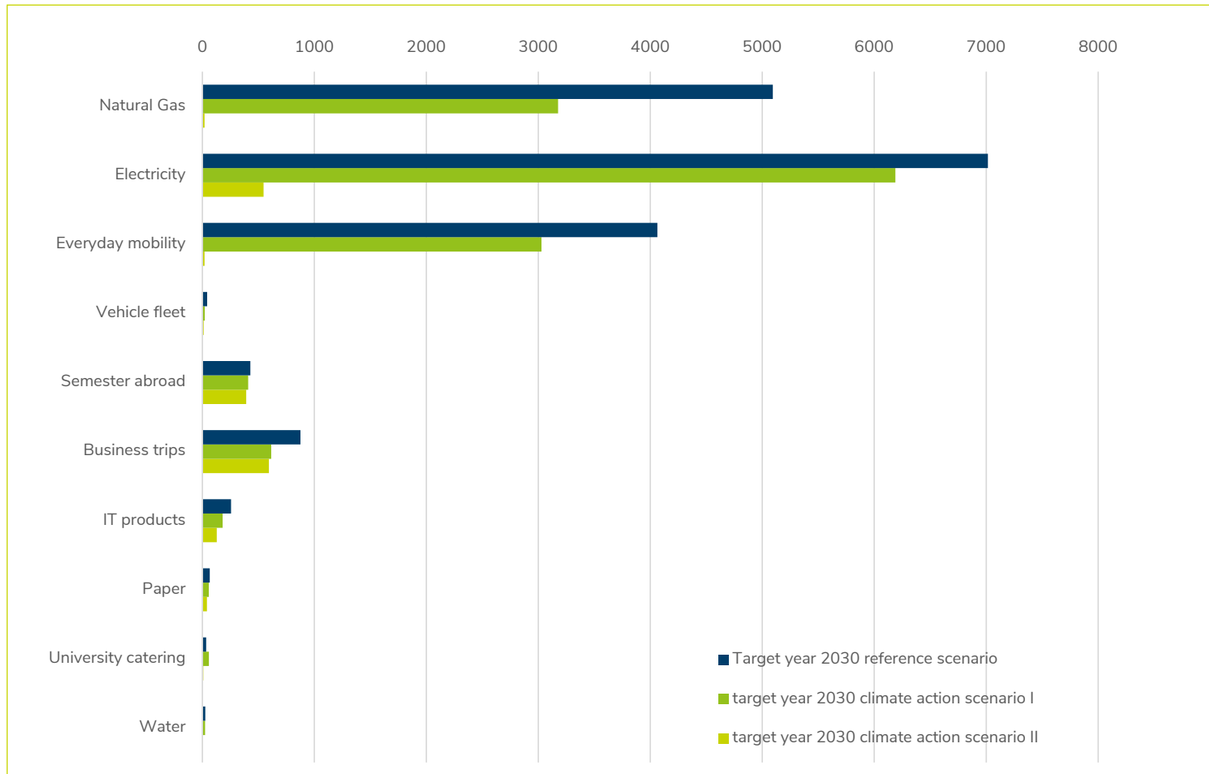

Figure 3 GHG emissions in the target year 2030 - comparison of the scenarios in t CO_2e/a

3.2.2 Scenarios taking green electricity products into account

Year	2,19	2,20	2,21	2,22	2,23	2,24
Reference scenario	12,838	9,054	12,627	12,415	12,203	11,991
Climate action scenario I	12,838	9,054	12,537	12,235	11,813	11,390
Climate action scenario II	12,838	9,054	12,209	11,580	10,699	9,819

Year	2,25	2,26	2,27	2,28	2,29	2,30
Reference scenario	11,779	11,568	11,356	11,144	10,932	10,720
Climate action scenario I	10,787	10,183	9,278	8,373	7,468	6,767
Climate action scenario II	8,561	7,302	5,415	3,528	1,641	3,9

Table 16 Scenarios (green electricity products) in t CO_2e e/a

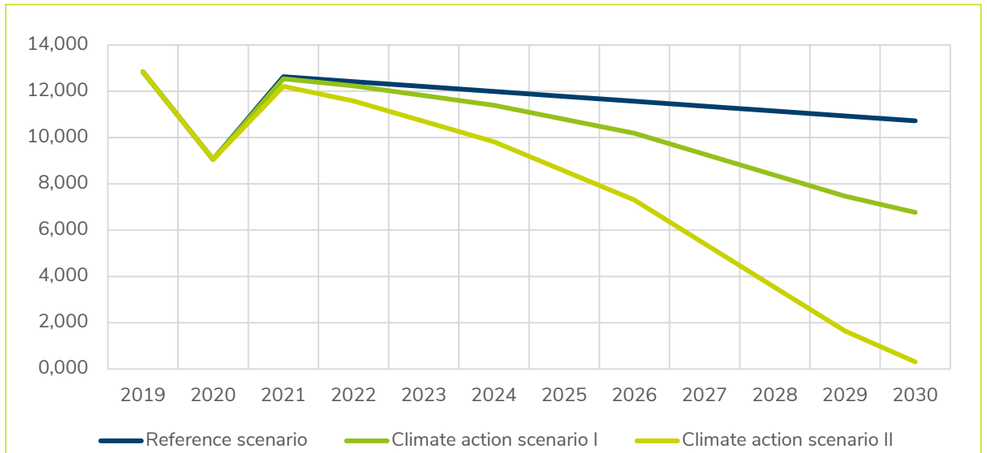

Figure 4 Scenario development taking green electricity products into account

3.2.3 Timeline of reference scenario

Year	2,19	2,20	2,21	2,22	2,23	2,24
National energy mix	21,378	14,528	21,061	20,744	20,427	20,110
Green electricity mix	12,838	9,054	12,627	12,415	12,203	11,991

Year	2,19	2,20	2,21	2,22	2,23	2,24
National energy mix	19,793	19,475	19,158	18,841	18,524	18,207
Green electricity mix	11,779	11,568	11,356	11,144	10,932	10,720

Table 8 Timeline of reference scenario in t CO_2e/a,

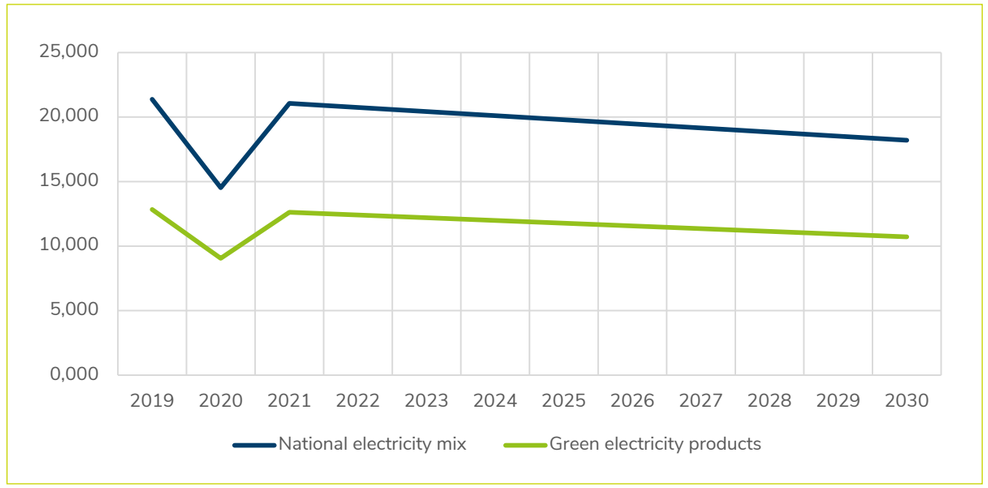

Figure 5 Development of the reference scenario in t CO_2e/a

Total GHG emissions (national energy mix)	Target year 2030	Reduction to 2019
	18,207	**14,84%**
Building energy	**12,109**	**16%**
Natural gas	5,094	2%
Electricity	7,015	8%
Mobility	**5,410**	**12%**
Everyday mobility	4,063	2%
Vehicle fleet	43	0%
Semester abroad	4,8	0%
Business trips	8,6	1%
Procurement	**6,8**	**16%**
IT	2,6	0%
Paper	66	0%
University catering	3,0	1%
Water	26	0%

Table 9 GHG emissions in the target year 2030 (in t CO_2e/a) compared to 2019 (in %) – reference scenario

3.2.4 Timeline of climate action scenario I

Year	2,19	2,20	2,21	2,22	2,23	2,24
National energy mix	21,378	14,528	20,994	20,609	20,070	19,531
Green electricity mix	12,838	9,054	12,537	12,235	11,813	11,390
Year	**2,19**	**2,20**	**2,21**	**2,22**	**2,23**	**2,24**
National energy mix	18,762	17,992	16,838	15,683	14,529	13,759
Green electricity mix	10,787	10,183	9,278	8,373	7,468	6,767

Table 10 Timeline of climate action scenario I in t CO_2e/a

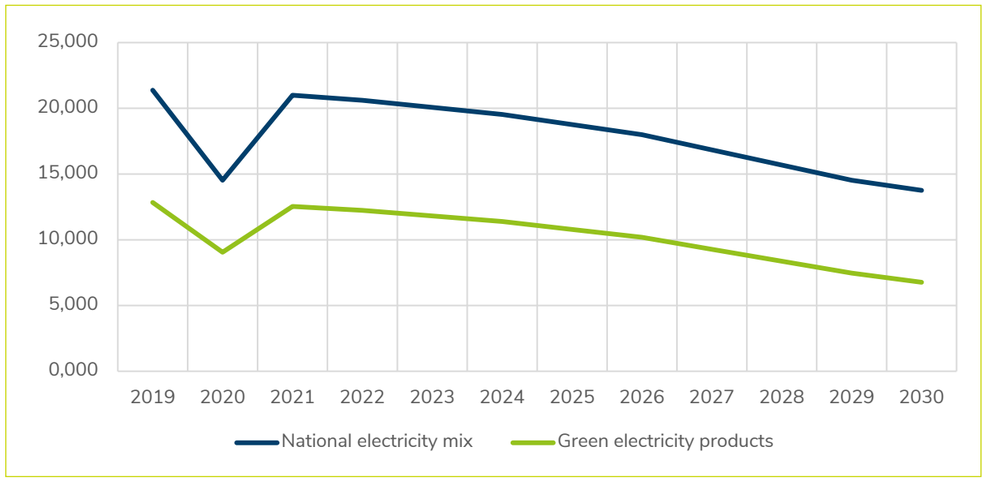

Figure 6 Development of climate action scenario I in t CO_2e/a

Total GHG emissions (national energy mix)	Target year 2030	Reduction to 2019
	13,759	**14,84%**
Building energy	**9,366**	**35,64%**
Natural gas	3,177	35%
Electricity	6,189	11%
Mobility	**4,073**	**12%**
Everyday mobility	3,028	34%
Vehicle fleet	21	7%
Semester abroad	4,9	0%
Business trips	6,5	0%
Procurement	**3,9**	**2%**
IT	1,1	61%
Paper	57	0%
University catering	58	0%
Water	24	2%

Table 11 GHG emissions in the target year 2030 (in t CO_2e/a) compared to 2019 (in %) – climate action scenario I

3.2.5 Timeline of climate action scenario II

Year	2,19	2,20	2,21	2,22	2,23	2,24
National energy mix	21,378	14,528	20,652	19,925	18,907	17,889
Green electricity mix	12,838	9,054	12,209	11,580	10,699	9,819
Year	**2,19**	**2,20**	**2,21**	**2,22**	**2,23**	**2,24**
National energy mix	16,436	14,982	12,801	10,621	8,440	6,864
Green electricity mix	8,561	7,302	5,415	3,528	1,641	3,9

Table 12 Timeline of climate action scenario II in t CO_2e/a

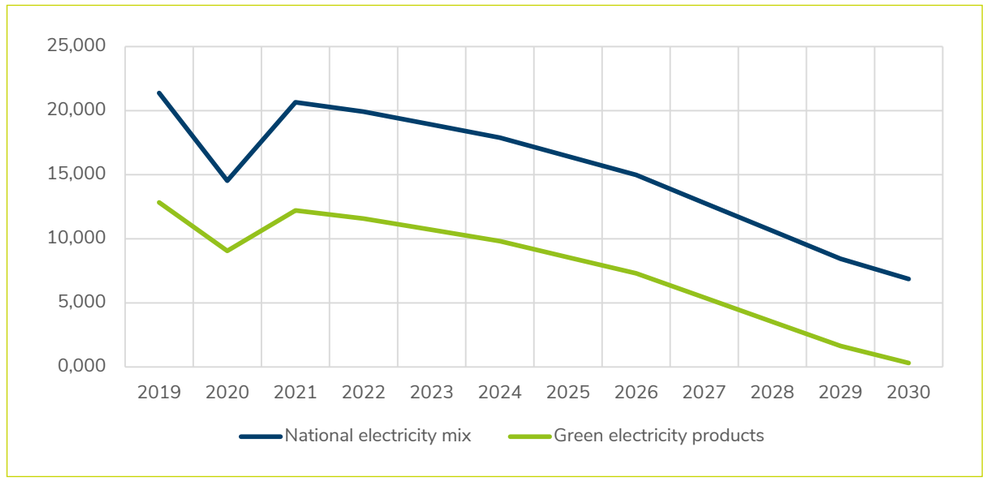

Figure 7 Development of climate action scenario II in t CO_2e/a

Total GHG emissions (national energy mix)	Target year 2030	Reduction to 2019
	6,864	**67,89%**
Building energy	**5,652**	**61%**
Natural gas	1,0	25%
Electricity	5,462	16%
Mobility	**1,015**	**16%**
Everyday mobility	19	21%
Vehicle fleet	11	0%
Semester abroad	3,1	0%
Business trips	5,4	2%
Procurement	**1,7**	**76%**
IT	1,8	1%
Paper	41	0%
University catering	8	2%
Water	20	0%

Table 13 GHG emissions in the target year 2030 (in t CO_2e/a) compared to 2019 (in %) - climate action scenario II

4 GHG reduction goals, strategies & prioritised spheres of activity

The University of Oldenburg's climate action goals are framed in a certain context of different climate action goals at various institutional levels.

Note: The exact definition of carbon neutrality and the system boundaries of the various levels are not included at this point.

Nationwide

In 2021, the national government passed the Federal Climate Change Act (KSG) with the aim of carbon neutrality by 2050. Following a ruling by the Federal Constitutional Court in April 2021, this law was revised again with the aim of Germany achieving carbon neutrality by 2045. The KSG establishes an intermediate goal of reducing GHG emissions by 65% by 2030 and envisages an 88% reduction in GHG emissions by 2040 compared to 1990. The requirements of the Local Authorities Guideline for this project are also based on these objectives.

At state level

The state of Lower Saxony also passed a Climate Change Act (NKlimaG). In 2021, the state parliament ruled that Lower Saxony is to become carbon neutral by 2050. Just as with the Federal Climate Change Act, this law was revised in June 2022 with the aim of the state achieving carbon neutrality by 2045. There is therefore a link with the state administration's own target of also achieving carbon neutrality by 2045. The intermediate goals for 2030 and 2040 largely comply with the KSG at the national level (reduction of GHG emissions by 86% by 2040 in the NKlimaG). As the University of Oldenburg is governed by the state and is therefore part of the state administration, these climate action goals apply accordingly to the university. A corresponding strategy paper is available from the state of Lower Saxony. On 7 November, the new national government's coalition agreement was presented, which envisages stepping up these goals. According to this, Lower Saxony is to become carbon neutral by 2040 and the state administration is to achieve this goal as soon as 2035, i.e. 10 years earlier than the current legislation provides for. By 2030, the state administration aims to reduce GHG emissions by 80%.

At local level

Prompted by a powerful climate action movement in Oldenburg and in Germany in general, the so-called "FFF process" was initiated in 2020, whereby the city administration prepared a catalogue of measures together with the parliamentary groups and the climate activists invited to participate. 2035 was already set as the target year for carbon neutrality. Given that the university is largely located in the Oldenburg city area, the target year 2035 is therefore also applicable to the university.

The town of Wilhelmshaven has not yet set any carbon neutrality goal.

4.1 The University of Oldenburg's climate action goal

The University of Oldenburg is primarily legally bound by the target of a carbon-neutral Lower Saxony state administration by 2045. However, the university joins the majority of German higher education institutions with the more ambitious target of achieving carbon neutrality by 2030.

The following goals are derived from the scenario development (Chapter 3.2):

National energy mix

Indicator	Current quantity 2019	2026 target	2030 target
Total GHG emissions	21,378 t	14,982 t	6,864 t
Per capita GHG emissions	1,13 t	0,79 t	0,36 t

Table 14 climate action goals in t CO_2e/a and t CO_2e/a/p

Green electricity product

Indicator	Current quantity 2019	2026 target	2030 target
Total GHG emissions	12,838 t	7,302 t	3,9 t
Per capita GHG emissions	0,68 t	0,38 t	0,02 t

Table 15 climate action goals in t CO_2e/a and t CO_2e/a/p

4.2 Prioritised spheres of activity

As can be seen from the greenhouse gas emissions (Chapter 2.3), most emissions arise in the area of 'Energy & Construction'. Renovation measures in this sphere of activity are therefore also given a high priority, especially as a relatively large amount of emissions can be saved here with individual measures.

Nevertheless, the climate action goals at the university cannot be achieved through technical measures alone. In the equally important areas of 'Everyday Mobility' and 'International Mobility' in particular, it is important to bring about rapid changes in behaviour to reduce the emissions from these sources. In light of the lack of funding from the state government, measures that the university can currently implement using current funds are also particularly important.

4.3 Limitations and challenges

Like other universities in Lower Saxony, the University of Oldenburg is affected by a renovation backlog amounting to almost €200 million. This also has an effect on the quantity of greenhouse gas emissions. As a result of the delay in renovation measures, a corresponding investment programme needs to be put in place by the state government to provide the required funding to achieve its own goal of a carbon-neutral state administration. This also includes staffing at the university as higher education institutions need to be in a position to implement the measures quickly and efficiently in view of the ever-worsening climate crisis. The renovation backlog is particularly affecting the sphere of activity of 'Energy & Construction', where the majority of the university's emissions are produced. The need for funding must be urgently underlined at this point. The detailed catalogue of measures drawn up (see Chapter 5) illustrates the University of Oldenburg's great willingness to initiate all necessary changes to achieve carbon neutrality. However, it must be emphasised that without an investment programme in line with the ambitions (and statutory goals) and without a revision of certain legal requirements and guidelines of the state, the University of Oldenburg cannot achieve carbon neutrality on its own.

In principle, the University of Oldenburg operates within a legal framework that does not allow for certain climate action measures according to the current legal situation (e.g. support for employees to purchase (e-) bicycles). In particular, ensuring sustainable everyday mobility depends to a large extent on the transport and mobility planning of the city of Oldenburg and the surrounding municipalities and districts.

In order to achieve carbon neutrality, it should also be taken into account that this goal cannot be achieved at the current time without additional compensation of emissions. In order to meet the university's, and ultimately the state's, climate action goals, legal regulation is required to grant, carry out and finance compensation projects.

5 Catalogue of measures & action profiles

This chapter presents the climate action measures that were jointly developed in the course of the initial project in a two-stage process. The catalogue of measures presents an overview of all measures that the university would like to pursue. In total, the list amounts to 55 measures with 91 sub-measures. A selection thereof is described and explained in more detail in the action profiles.

5.1 Catalogue of measures

5.1.1 Procedure for drawing up the catalogue of measures

The project was announced at a university event in November 2021, and all university members were invited to submit proposals for measures via email. In addition, following the event to present the greenhouse gas emissions in February 2022, a digital brainstorming session was arranged, where participants could compile their concrete suggestions for the various spheres of activity. In addition, there were seven different workshops on the different areas in June 2022, where measures were developed. The different forms of stakeholder participation are described further in Chapter 6.1.

All proposals that were received during the process of participation were compiled and summarised by the climate action manager. Duplicate ideas (e.g. renting e-bikes or having university bikes) and very generic proposals (“more renewable energies”, “less car traffic”) were removed. A list of possible measures was thus developed for all areas of action, which could be included in the first draft of the catalogue of measures. This list can be found in its entirety in the annex of the full version of the concept.

These measures were listed in an Excel spreadsheet and numbered for further work based on the criteria of the project promoter’s template for the action profile. The results of the potential analysis, which were prepared by Ingenieursbüro TARA GmbH, were added to these measures, in particular in the area of ‘Energy & Construction’. In addition, measures proposed by the climate action manager that were not mentioned during the participation stage but arose, for example, in exchanges with other universities or coordinators within the University of Oldenburg were added to the list. For the sake of transparency, it is explicitly stated where the measure comes from in the detailed presentation of the catalogue of measures as well as in the respective action profiles. In consultation with the various parties responsible for implementation within the university, the measures were then reviewed once again to see if they were fundamentally feasible and relevant for the climate action project. In addition, any outstanding questions were cleared up in this process, leaving the final list of measures for the catalogue of measures. As far as possible, the descriptive information on the respective measures was supplemented and noted.

Diese Liste ist vollständig im Anhang der Langfassung des Konzepts aufgeführt.

› **uol.de/klimaschutzkonzept**

5.1.2 List of measures

Discipline	Number	Title
Energy & Construction		HEAT
	EB_01	**Heat production energy efficiency**
	EB_01_01	Switching from centralised water heating to decentralised instantaneous water heaters in areas with low hot water demand in HT & WHV
	EB_01_02	Optimising the heating distribution pipes + insulation (maintain insulation)
	EB_02	**Waste heat utilisation in cooling (use of waste heat from new cooling units to cool the growing data centres)**
	EB_03	**Switching energy source for heat to electricity**
	EB_03_01	Commissioning a feasibility analysis for switching to heat pumps at all sites
	EB_04	**Use of renewable energy for heat (biogas for cogeneration units)**
	EB_04_01	Commissioning a feasibility analysis for converting the operation of the cogeneration units with biogas
	EB_05	**Building envelope (renovation of roofs and windows)**
	EB_05_01	HT: in particular A01-A04, canteen, library
	EB_05_02	W: in particular W1-W4, W07
	EB_05_03	WHV: WHV2-3a (damp problem in the basement)
	EB_06	**Building greening**
	EB_06_01	Roof and facade greening on new buildings
	EB_06_02	Roof and facade greening on existing buildings
	EB_07	**Reducing the operating times of technical equipment**
		ELECTRICITY
	EB_08	**Ventilation systems energy efficiency**
	EB_0_081	HT: in particular ventilation system of the library & sports hall
	EB_08_02	W: in particular equipment rooms TZ04, TZ07, TZ09 and TZ11
	EB_08_03	WHV: in particular old ICBM building
	EB_09	**Lighting energy efficiency (replacement of fluorescent lamps with LED technology & control)**
	EB_09_01	W: W00, W08 - W013
	EB_09_02	WHV: WHV1 ICBM WHV Schleusenstraße, outdoor lighting
	EB_09_03	Motion sensors in corridors, toilets, etc.
	EB_10	**Optimising cooling units**
	EB_11	**Use of renewable energy for electricity**
	EB_11_01	Expansion of PV systems, also on covered parking spaces, bicycle parking spaces, garages, etc.
	EB_11_02	Commissioning of a feasibility analysis for the installation & use of a wind turbine on campus (Wechloy)

Energy & Construction

EB_11_03	Installation of solar panels in / on facades
EB_11_04	**Review energy recovery from WindLab**
EB_11_05	Commitment at the state level to improving the quality of green electricity

GENERAL

EB_12	**Energy cost budgeting**
EB_13	**Communication**
EB_13_01	Communication & encouragement of energy-saving behaviour among university members
EB_13_02	Visualisation of consumers
EB_13_03	General accompanying communication of planned and implemented measures
EB_14	**Review for constructing local heating centres at municipal level**
EB_15	**More efficient space management**
EB_15_01	Review and development of new space occupancy concepts, e.g. with monetary space allocation schemes & pilot projects in individual schools, departments, working groups, etc.
EB_15_02	Hybrid teaching formats for green lectures to reduce the use of lecture halls and make room planning more efficient, e.g. by moving supposedly large classes to rooms that match the actual number of attendees
EB_16	**Moving the schools' small data centres to the Data Centre**
EB_17	**Buildings & building projects**
EB_17_01	Clear prioritisation of sustainability and climate action criteria for construction projects
EB_17_02	Promoting BNB certification for existing & new buildings
EB_17_03	GHG-based consideration when weighing up renovation or new building
EB_17_04	Favouring carbon-neutral construction materials for new buildings
EB_18	**Establishing a staff position for energy management with government funding through Local Authorities Guideline**

Ecology

ÖC_01	**"Forest campus", e.g. with tree sponsoring**
ÖC_02	**Facade & roof greening**
ÖC_02_01	for new buildings
ÖC_02_02	for existing buildings
ÖC_03	Checking the outdoor lighting in terms of insect protection
ÖC_04	**Developing a comprehensive usage concept for all spaces.**
ÖC_05	**Biodiverse design of green spaces**
ÖC_05_01	Unseal surfaces
ÖC_05_02	Insect-friendly installations on the campus (flowering meadows & shrubs)
ÖC_05_03	Mow lawns less & create litter meadows
ÖC_05_04	Creation of biotopes
ÖC_06	**More environmental education on the campus, e.g. with information boards etc.**

Everyday mobility

AM_01	**Promoting e-mobility**
AM_01_01	Converting vehicle fleet to electric vehicles
AM_01_02	Charging stations for electric cars
AM_02	**Parking management**
AM_03	**Package of measures for bicycle infrastructure & promotion**
AM_03_01	Enhance & promote bicycle repair (e.g. pump stations)
AM_03_02	Bicycle hire for students & staff
AM_03_03	Placing bicycles that can be hired at the Wechloy train station
AM_03_04	Cargo bikes in the university's vehicle fleet for transport
AM_03_05	More covered, lockable spaces with charging facilities
AM_03_06	Charging infrastructure for e-bikes
AM_03_09	Set up changing rooms & shower facilities in new buildings
AM_03_10	Commitment at the municipal level to better cycle paths to the university
AM_03_11	Bicycle routes & maps with focus on the university
AM_03_12	Enabling (financial) support for bicycles, e-bikes, cargo bikes, etc.
AM_03_13	Converting parking spaces to bicycle spaces
AM_04	**Promotion of public transport**
AM_04_01	Commitment to better public transport links to the university from rural areas
AM_04_02	Commitment to improved connections at Wechloy train station
AM_04_03	Commitment to increased bus service at peak times in everyday university life
AM_04_04	Better information provided about the job ticket
AM_05	**Action & communication**
AM_05_01	Mobility challenges between schools, working groups, organisation units, etc.
AM_05_02	Carrying out information campaigns
AM_06	**Governance, partnerships & other**
AM_06_01	Permanent networking of stakeholders
AM_06_03	Founding a mobility working group / mobility round table
AM_06_04	Developing a mobility concept for the WHV site
AM_06_05	Introducing and using a car sharing platform
AM_06_06	General reduction of the university's own vehicle fleet and promotion of car sharing

International mobility

IM_01	**Strategic direction**
IM_01_01	Integration of climate action & sustainability (incl. trade-off) in internationalisation strategy & work
IM_01_02	Focus on Europe when selecting strategic partners and focus on European networks
IM_01_03	Holding a series of events to address and discuss the trade-off between internationalisation & climate action
IM_02	**Reduction in emissions of business trips**

International mobility	IM_02_01	Reduction in flying, in particular short-haul flights
	IM_02_02	Introduction of an internal compensation mechanism for flying
	IM_02_03	Business trips by plane only in Economy
	IM_02_04	Commitment to offer hybrid option for international conferences & project meetings
	IM_03	**Reduction in emissions from student mobility**
	IM_03_01	Provide better advice with a focus on Europe
	IM_03_02	Provide better information on the funding options for sustainable transport
	IM_03_03	**Increased promotion of summer schools in Europe or in the vicinity to reduce long-distance and short-stay travel**
	IM_04	**Communication offer to make emissions visible**
Resources	**RE_01**	**Increase the useful life & lifetime of products & materials**
	RE_01_01	Setting up an internal marketplace for used goods
	RE_01_02	Promoting the shared use of products
	RE_01_03	Establishing and enhancing repair options
	RE_02	**Revising the purchasing policy in terms of sustainability and climate action criteria**
	RE_03	**Revising & introducing central standards (e.g. no purchase of single workstation printers for offices)**
	RE_04	**Examination of further options for giving away items, e.g. through auctions or similar means.**
	RE_05	**Development & implementation of a concept for sustainable laboratory management**
Research, studying & teaching	**FS_01**	**Categorisation of research projects & courses by SDGs**
	FS_02	**Development & application of a GHG footprint for research projects**
	FS_03	**Inclusion of research projects for developing and implementing measures**
	FS_03_01	Establishing and maintaining a subject pool from climate action projects for theses from various subject areas
	FS_03_02	Communicating problems from climate action projects to departments for possible handling as research projects
	FS_03_03	Implementing & supervising larger projects through research projects, e.g. in the area of energy
	FS_04	**Establishing internal expert councils for various topics**
	FS_05	**Enhanced teaching of the topics of “Climate & Sustainability”**
	FS_05_01	Subject-related integration in all degree programmes
	FS_05_02	New climate teaching programmes, e.g. Master’s degree in climate
	FS_05_03	Certificate programme for climate action & sustainability
	FS_05_04	Promotion of interdisciplinary teaching, e.g. of natural and social sciences
	FS_05_05	Raising teachers’ awareness of sustainability and climate-related issues (“train the trainer”)
Governance	**GO_01**	**Staff implementation in the university**
	GO_01_01	Introduction of a half-time staff position on the Presidential Board
	GO_01_02	Extension of the project through follow-up projects of the Local Authorities Guideline
	GO_02	**Governing committees, networks, working groups etc. within the university**
	GO_02_01	Continuation of the Climate-neutral university research group as steering group
	GO_02_02	Introduction of voluntary local sustainability officers or building managers
	GO_03	**Cost Accounting**
	GO_03_01	Establishing GHG emissions every two years
	GO_03_02	Examination for participation in relevant rankings on the topic of climate action & sustainability
	GO_03_03	Examination of the possibility of introducing an internal carbon price as an overarching steering instrument
	GO_04	**Use of the government funding opportunity for the development of a climate adaptation concept with a climate adaptation manager**
	GO_05	**Introduction of a climate action fund**
Communication & miscellaneous	**KS_01**	**Developing guidelines & regulations**
	KS_01_01	for sustainability & climate action when working from home
	KS_01_02	for sustainable & environmentally friendly event management
	KS_01_03	for sustainable merchandise & advertising material (e.g. gifts for freshers)
	KS_02	**Conducting idea competitions and themed campaigns**
	KS_03	**Various thematic offers for further training of staff via PEOP.E**
	KS_04	**Increased communication of measures in the various phases of implementation**

Table 16 List of measures

5.2 Action profiles

In the following section, some of the measures will be presented in more detail in profiles. The selection of these measures is based on several principles:

1. Diversity of spheres of activity

At least 1-2 measures per sphere of activity should be included in the profiles in order to do justice to the variety of ways in which the issue of climate action can be dealt with.

2. Diversity of the nature of the measures

Some profiles describe technical renovation and efficiency measures. Other measures provide incentives whilst other measures in turn have a regulatory effect.

3. Diversity of the scope of the measures

The measures are to be implemented at different speeds. This symbolises the fact that the large, long-term projects must be initiated quickly, but that the smaller, faster-acting measures must also be implemented in the meantime.

Overview of action profiles

Sphere of activity	Number	Measure
Energy & Construction	1	Waste heat utilisation in cooling units
	2	Feasibility studies of renewable energies
	3	Replacement of ICBM ventilation system
	4	Switching to LED technology & control
	5	Expansion of solar panels
	6	Energy cost budgeting & alternative space management
	7	Sustainable & environmentally friendly construction
Campus ecology	8	Campus design usage concept
	9	Tree sponsoring programme
	10	More environmentally friendly design of green spaces
Everyday mobility	11	Expansion of electric vehicles
	12	Parking management
	13	Promoting bicycle infrastructure
	14	Improving public transport
International mobility	15	Reduction in flying
	16	Internal compensation mechanism for flights
	17	Focus of advice on Europe
Resources	18	Life cycle of products & materials
	19	Central standards & purchasing policy
Research, studying & teaching	20	Categorisation of research & teaching by SDGs
	21	Subject pool for theses
	22	Inclusion of research in the implementation of measures
Governance	23	Internal carbon price
	24	Climate action fund

The action profiles can be found in their entirety in the full version of the climate action concept.

› **uol.de/en/climate-action-concept**

6 Stakeholder participation & communication strategy

The participation of all relevant stakeholders in developing the climate action concept is crucial for success both when creating and implementing the resulting measures. Appealing and target group-oriented communication is vital for the success of stakeholder participation. It should be taken into account that the elements of stakeholder participation and communication are inextricably linked.

6.1 Stakeholder participation

The various offers are intended to ensure that as many university members as possible gain insight into the project and the different ways to contribute.

6.1.1 Aims of stakeholder participation

The aims listed below apply both to the process of creating the climate action concept and to its implementation looking to the future. In addition, the aims include work with internal and external players.

— Informing everyone at the university about the progress and development of the project process as well as about the results produced

— Participation and involvement of university members in developing measures and implementing them

— Reporting to and involving university governing committees on project implementation and goal achievement

— Creating a space for a friendly exchange of ideas as equals on climate action and sustainability at the University of Oldenburg and beyond

— Reinforcing the sense of responsibility of the university as an institution and of university members as representatives of the institution regarding the issue of climate action & sustainability

6.1.2 Stakeholder participation & communication to date

This chapter outlines how the various stakeholders were approached and integrated into the process during the development of the climate action concept. The Climate-neutral university research group will be presented in particular in the abridged version. Other key stakeholders were the students, the HochNiNa network and the service provider TARA Ingenieursbüro GmbH.

Climate-neutral university research group

The proposal to apply for and carry out the initial project via the Local Authorities Guideline came from the Climate-neutral university research group. The research group was founded following a student body initiative and the subsequent discussion in the University Senate. Ever since the research group submitted the application for funding through the Local Authorities Guideline (KRL), it has been constantly active throughout the entire course of the project as a supervisory steering group. It was made up of the following members (with minor personnel changes):

— Vice President for Administration and Finance

— Climate action manager

— 2 professors

— Spokesperson for the Student Council (AStA) and representatives of the Student Council's sustainability unit

— Representatives of the local Students for future group

— Facility management division (throughout)

— 2 research staff (1 person throughout, 1 person joined in June 2022)

— 1 administrative/technical staff member (with a personnel change at the start of 2022 and successor in July 2022)

The research group was open to all interested parties who could join on request. In keeping with the subject of the respective meeting dates, additional invited guests attended meetings. The research group usually met once a month and oversaw the execution of the project.

Figure 9 Group photo of the Climate-neutral university research group

Students

Student Council (AStA)

The Student Council was a member of the Climate-neutral university research group throughout the entire process and was represented there by the Student Council spokesperson and the sustainability officers until its departure. A bilateral exchange also took place at regular intervals between the Student Council and the climate action manager.

Students for future

Members of the local group Students for future were part of the Climate-neutral university research group throughout and were always invited to meetings.

Student representatives

All invitations to the events offered as well as the action workshops were also sent to a mailing list addressing all student representatives. Content from the project relevant to students (e.g. published Master's theses, job advertisements for student assistants) was also sent to this mailing list.

HochNiNa

The climate action manger is in regular contact and actively collaborates with other climate action managers, sustainability coordinators and officers etc. in other higher education institutions in Lower Saxony. The 'Network for Sustainability of Lower Saxony Universities HochNiNa' has a special role to play here. Within the scope of this network, there is a regular exchange of ideas and active cooperation in thematic working groups, as well as a united front vis-à-vis other stakeholders, such as the Lower Saxony Ministry for the Environment.

External service provider TARA Ingenieursbüro GmbH

As part of the project, the involvement of an external service company was eligible for funding. TARA Ingenieursbüro prevailed here in the application process. The company's staff provided tremendous support to the University of Oldenburg, in particular with assessing the greenhouse gas emissions and creating the potential analysis and scenario development. In addition, they provided specific support in the course of the ongoing process, in particular by working on the content of individual questions from the area of 'Everyday mobility'.

The communication channels used during the development of the concept will be briefly outlined below and the events that were held will be presented.

6.1.2.1 Digital communication channels

Social media

terms of social media, the University of Oldenburg is present on Facebook, LinkedIn, Twitter and Instagram (as of April 2022). These channels were used to publish announcements about the start of the project and information about the events of the climate action project. In general, these channels (especially Instagram) are used to regularly provide information on the university's climate action and sustainability activities. The LinkedIn platform was also used by the climate action manager's private channel.

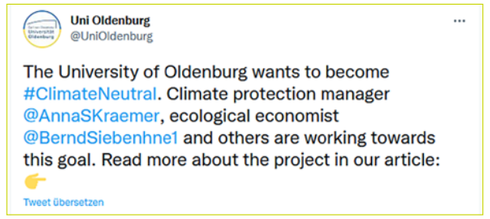

Figure 10 Twitter post about the start of the project

Website

At the start of the project, a separate sub-page on the topic of Climate Action & Sustainability was set up on the university website under the Profile of the University section and has been continually maintained since then. Information on progress of the project is provided here and the respective thematic spheres of activity are also presented. The page is intended for both external and internal communication (through presentation of some content via the intranet function). There is also a small contact form on the website's various pages which can be used to send suggestions, ideas and requests (or criticism) to the climate action management team.

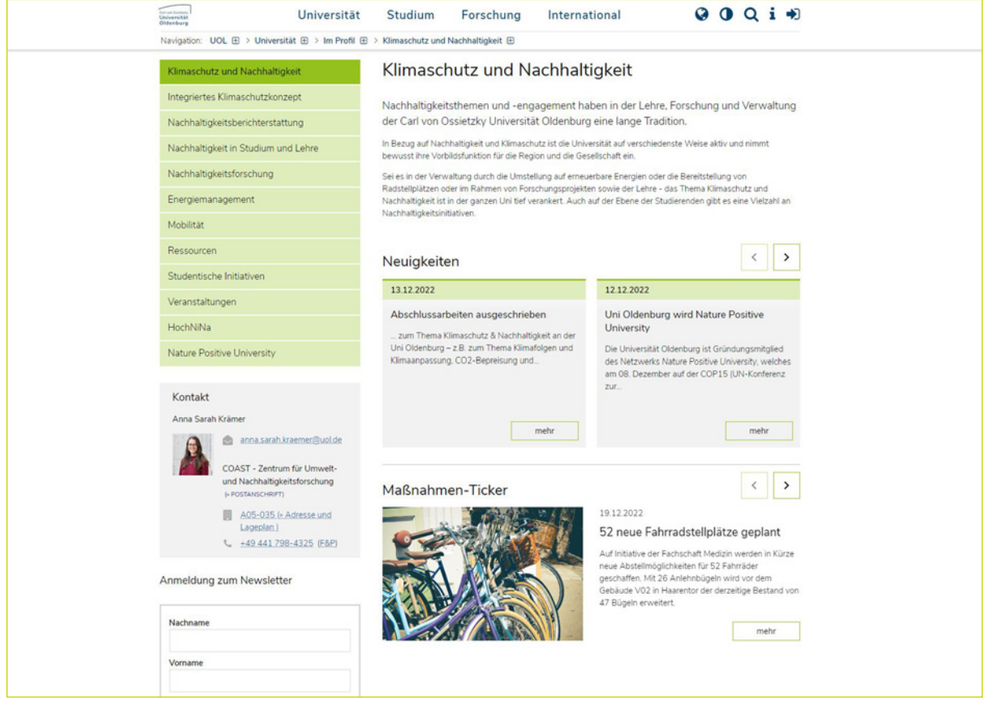

Figure 11 Homepage of the "Climate Action & Sustainability" website

Stud.IP

Stud.IP is the open-source learning management system available to all university members via their personal ID. On the homepage, the 'Announce' section regularly featured actions from the climate action project, e.g. events or calls to participate in surveys. The messages were visible for all university members there.

Mailing

Information on the climate action project and calls to participate were regularly emailed to students and staff via the mailing lists. This included, for example, invitations to university-wide events or calls to take part in the mobility survey and attend the action workshops.

Press releases

The start of the project was accompanied by media work, which is also planned for the conclusion of the project or for the adoption and publication of the concept. Further press releases are conceivable for milestones relevant to the public, event announcements, etc.

Newsletter

In order to provide more detailed updates on how the project is progressing, the climate action manager brought out a little newsletter, which is sent out by email from time and time and contains news about the project and other sustainability activities around the university. This newsletter was always mentioned at all events or in the circular emails sent to university members.

(for digital UNI-INFO, see below)

6.1.2.2 Analogue communication channels

UNI-INFO

he Uni-INFO is an internal magazine published by the communication & press department. Printed copies are available at several locations and it can be accessed online on the website. The project was presented and explained in detail in several articles, for example at the start of the project and when publishing the greenhouse gas emissions.

Green board in the canteen foyer

At the start of the project, a magnetic board was put up in the canteen foyer at the Haarentor site, where various topics are displayed at regular intervals in line with the progress of the process.

Posters

FIyers were handed out in the Haarentor and Wechloy canteens to make people aware of the sign-up phase for the action workshops.

Plakate

For the sign-up for the workshops, posters advertising the chance to participate were also displayed at the Haarentor and Wechloy sites in the various campus buildings. In addition, large posters on the university's various spheres of activity were displayed at the Haarentor and Wechloy sites for two weeks at the start of the project in October to raise general awareness of the issue and project.


AKTUELLES UNI-INFO
2
Startschuss für einen Marathon
Die Universität soll klimaneutral werden, das hat der Senat im Frühjahr 2020 entschieden. Klimaschutzmanagerin Anna Sarah Krämer erarbeitet ein Konzept mit konkreten Maßnahmen, um das ambitionierte Ziel zu erreichen – und setzt dabei auf die Beteiligung aller Universitätsangehörigen

Figure 12 UNI-INFO Oct. 2021 issue

Figure 13 Green board in the canteen foyer, May 2022

6.1.2.3 Events

Climate kick-starter

On Thursday 4 November 2021, the project was presented as part of a one-hour online event entitled Climate kick-starter. Following a welcome address from the University President and a brief insight into the city of Oldenburg's climate action activities provided by the responsible head of department, the climate action manager set out the project, the milestones to be reached and the components of the concept. The Student Council also had the opportunity to outline their activities in this field during the event. Finally, attendees were able to ask any questions. Almost 200 people attended the event.

Environmental stocktaking & brainstorming

On Thursday 24 February 2022, the GHG emissions were made public to the university as part of a one-hour online event entitled Environmental stocktaking. Following a welcome address from the University President, the climate action manager outlined the university's carbon footprint. Attendees then had the chance to ask questions and give their opinion. Around 150 people attended this event. A digital brainstorming session with around 40 people then took place to gather initial ideas for measures for the various spheres of activity. Here, the participants were divided into several groups in break-out sessions, in which they collected ideas on the various topics with moderation on a MURAL board and discussed them among themselves. All sub-teams then returned to the same meeting room and the moderators of the respective sessions briefly outlined the results. The compiled results were then used to prepare the action workshops and were partially incorporated into the climate action concept.

Screening of NOW

In order to create a low-threshold offer especially for students, a screening of the film NOW was arranged for Thursday 19 May 2022. The film features various young climate activists from a wide variety of areas. The screening took place in the evening in Lecture Hall 1 and was organised in collaboration with the university cinema Gegenlicht. Professional Olympic athlete and environmental activist Carlotta Nwajide was invited to talk about her environmental activism, the role of professional sport and environmental racism before the film. Around 30 students attended the event.

Figure 14 Screenshot of the Climate kick-starter with Peter Zenner, Anna Krämer & Prof. Ralph Bruder

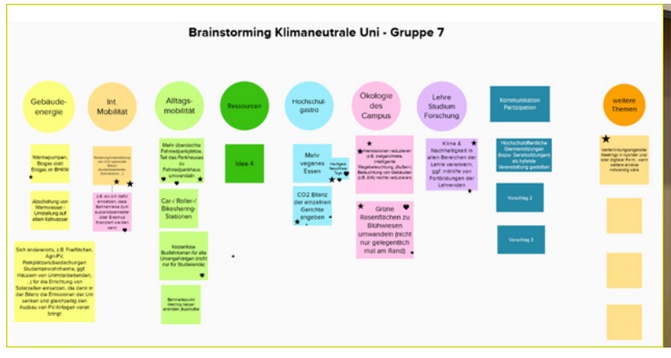

Figure 15 Screenshot of the MURAL board from the brainstorming session

Action workshops

In June 2022, a three-hour in-person action workshop took place for each sphere of activity at the university to develop and discuss measures.

- 15/06/2022 University catering (morning)
- 22/06/2022 Energy & Construction (morning); campus ecology (afternoon)
- 23/06/2022 Everyday mobility (morning); international mobility (afternoon)
- 24/06/2022 Resources (morning); research, studying & teaching (afternoon)

A wide variety of channels were used to invite people to these action workshops. Every university member was invited to participate and to sign up via Stud.IP. Each of the workshops was also staffed by people from the university who work in or are responsible for the respective sphere of activity or who could bring with them a wealth of expertise in the field thanks to their work at the university. Overall, however, the workshops were designed so that even those without any expertise had the chance to take part in the workshop and join in the discussion. The offer of workshops was met with great interest overall and many people signed up. The workshops on the topics of Energy & Construction and Everyday mobility in particular struck a chord and were fully booked. After some brief guidance from the climate action manager on the respective subject area, participants were divided into smaller groups to work on the topic on flip charts using the World Café method. The workshops concluded with a brief presentation of the respective results and the participants had the opportunity to mark their favourite ideas and measures with small glue dots. Participants were able to provide anonymous feedback of the workshop they had attended in an online survey. The evaluation and oral feedback provided by participants painted an all-round positive picture of how the workshops had gone. The results of the workshops were then taken as a fundamental basis for developing the catalogue of measures.

Figure 17 Insight into everyday mobility workshop (1)

Figure 18 Insight into everyday mobility workshop (2)

Figure 16 Carlotta Nwajide (left) at the screening of "NOW", moderated by Lea Wieser (right)

Figure 19 Insight into international mobility workshop

6.2 Communication strategy

It is outlined here how the university community will continue to be informed of and involved in the implementation of the concept. Sound, continuous communication is vital for the success of the measures, especially those that require a majority of university members to accept them and/or require a change in behaviour. Just as with the involvement of the various stakeholders, successful communication of the publication and implementation of the concept is essential for its success. The climate action manager in particular is responsible for this communication in close cooperation with the Press & Communication unit.

6.2.1 Messages

Communication is based on the following messages that the university wants to send and endorse internally and externally:

— The University of Oldenburg believes in climate action. Climate action and sustainability shape the way we see ourselves. Climate action is researched, taught and embraced at the University of Oldenburg.

— The university takes responsibility for the future development of society. At the University of Oldenburg, responsibility for climate action means working together, both internally and externally.

— The University of Oldenburg considers climate action to be a joint task – within the university and in partner networks.

— The University of Oldenburg is a space for ideas and a laboratory for the future at the heart of society. It sees itself as a driving force and pioneer.

These messages are the basis for internal and external communication and fundamentally underlie the implementation of the climate action concept.

6.2.2 Aims

The following aims are defined for the communication work for the implementation of the climate action concept:

Strategic aims:

— The university's profile is further enhanced by an even greater focus on the issue of climate action.

— Communication for implementing the concept and on the issue of climate action in general is interactive.

— Climate action at the university is a joint task.

— The university is an established platform for exchanging ideas and a driving force for climate action in the city and region in exchange with external stakeholders.

Operational aims:

— The majority of university members are aware of the climate action concept.

— The communication service offers easy and appealing access to target group-oriented information on issues concerning climate action.

— University members find out which measures are implemented as well as when and why via various channels.

— University members are motivated to get involved in subsequent processes and to take the initiative.

— The university's networking in the city, region and beyond is also embodied in the day-to-day operations of climate action.

Acceptance by the university community of the measures to be implemented is crucial to the success of the climate action concept. Furthermore, it should be taken into account that the communication work for implementing the concept is primarily focused on the accompanying communication of measures from the various areas of action. To this end, communication tailored to the different target groups is very important, especially for reaching students.

In general, it is important to outline both individual measures and the implementation of the concept as a whole in communication. At the University of Oldenburg in particular, communication of the activities from the climate action project can be effectively combined with communication about ongoing research projects, courses and student initiatives.

6.2.3 Communication measures

The following communication measures are envisaged for the accompanying communication of the implementation of the climate action concept:

— Continual expansion of the website as a central reference point for this issue

— Visible placement & maintenance of green boards at every university site

— Public relations work for milestones or results relevant to the public as well as promotion in local regional media

— Regularly addressing the issue on social media Regular reports on the progress of implementation, e.g. in UNI-INFO or on the university's homepage

— Further enhancement of the climate action newsletter

— Communication & illustration of the climate action concept

— Organising action days and small competitions (e.g. photo competitions)

— Communication about the successful implementation of measures from the concept

— Raising awareness of the subject of 'climate action at university', especially amongst students

— Additional reporting to the university governing committees

— Regular events and thematic linking to other events

— Enhancing networking (networking with the city & region, networking via HochNiNa, etc.)

Communication is, of course, always adapted to the dynamics of the social context in relation to this topic, to the reality of the implementation projects and to everyday university life.

7 Controlling concept

The implementation of the climate action concept requires continuous recording of success indicators and a constant update of the greenhouse gas emissions. In general, attention must be paid to the efficiency of the monitoring system in order to be able to precisely measure and thus control the implementation of the climate action measures, but at the same time to use as few human resources as possible in the long term, which are then in turn lacking during implementation. When controlling the climate action measures, not only are the target and current states recorded, but adjustments are also made to the implementation of the measures if required such that controlling not only has a monitoring function but also a steering function[1].

7.1 Updating the greenhouse gas emissions

Greenhouse gas emissions should be updated every two years. A report cycle that provides an overview of the progress of climate action activities at sufficiently regular intervals but, at the same time, does not overburden the university administration with the additional work of data provision has thus been selected. In the same time frame, it is planned to repeat the mobility survey to collect data in the area of everyday mobility. According to the report cycle, greenhouse gas emissions will be reported up to the target year 2030 as follows:

— Spring 2023 for assessment year 2022
— Spring 2025 for assessment year 2024
— Spring 2027 for assessment year 2026
— Spring 2029 for assessment year 2028
— Spring 2031 for assessment year 2030

The calculation of GHG emissions will be linked to the already existing sustainability reporting. Responsibility for updating the greenhouse gas emissions lies with the climate action management team, whilst the sustainability report is produced as before by the Research Centre for Environment and Sustainability (COAST) as part of a course.

Greenhouse gas emissions constitute the core element of controlling the success of the implementation of the climate action concept. Data for the assessment and the indicators below are collected in close collaboration with the specified departments or are provided by the departments.

[1] The controlling system is subject to the Plan-Do-Check-Act cycle (PDCA cycle) from quality management.

7.2 Indicators and controlling measures

The following indicators are used in addition to the greenhouse gas emissions for the different spheres of activity. At the same time, the university endeavours to continually improve the quality of the assessment and, in particular, to account for Scope 3 emissions as accurately as possible.

1 - General

The data for these indicators or monitoring measures is obtained from the complete version of all data necessary for calculating GHG emissions.

— Reduction of GHG emissions overall in t CO2e/a
— Reduction of per capita GHG emissions in t CO2e/a/p

A further controlling measure involves checking for deviations and making corrections to possible adjustments in the implementation.

2 - Energy & Construction

In order to ascertain the progress of measures in this sphere of activity, data is primarily required from Facility Management (Division 4).

— Reduction of GHG emissions in the area of Energy & Construction overall in t CO2e/a
— Reduction of per capita GHG emissions in the area of Energy & Construction in t CO2e/a/p
— Reduction of energy consumption overall in MWh/a
— Reduction of per capita energy consumption in MWh/a/p
— Reduction of electricity consumption overall in MWh/a
— Reduction of per capita electricity consumption in MWh/a/p
— Reduction of heat consumption overall in MWh/a
— Reduction of per capita heat consumption in MWh/a/p
— Increase in the proportion of renewable energies in %

3 - Everyday mobility

The data for the area of everyday mobility is collected from an extensive mobility survey completed by staff and students at the university. As a general rule, it is necessary to further improve the data basis in this sphere of activity.

— Reduction of GHG emissions in the area of everyday mobility overall in t CO2e/a
— Reduction of per capita GHG emissions in the area of everyday mobility in t CO2e/a/p
— Increase in the proportion of bicycle usage for travelling to/from the university in %
— Reduction in the proportion of car usage powered by fossil fuels in %

4 - International mobility

Data on the international mobility of students is primarily collected from the International Office. The quality of the data basis must be improved here, which is why an internal process was already initiated during the initial project. The same applies to the data basis concerning staff business trips, which is primarily provided by Division 2 and IT services. Here too, a process was already initiated to improve the data basis.

- Reduction of GHG emissions in the area of international mobility overall in t CO2e/a
- Reduction of GHG emissions in the area of business trips in t CO2e/a
- Reduction of GHG emissions in the area of business trips per employee in t CO2e/a/p
- Reduction of GHG emissions in the area of semesters abroad in t CO2e/a
- Reduction of GHG emissions in the area of semesters abroad per student in t CO2e/a/p
- Increase the take-up of funding opportunities for sustainable transport for student mobility in €
- Reduction of distance travelled by plane for business trips, in km

5 - Resources

Data about the university's central purchases is provided by Division 2. Division 4 provides data on the amount of waste and disposal even though these values are (currently) not taken into account when calculating GHG emissions. Facility Management also has the values on water and sewage volumes. The data basis also has room for improvement in the area of procurement.

- Reduction of GHG emissions in the area of resources overall in t CO2e/a
- Reduction of per capita GHG emissions in the area of resources in t CO2e/a/p

The actual and target values of the indicators are presented in detail in the full version of the concept.

› **uol.de/en/climate-action-concept**

8 Continuity strategy

With the adoption of the climate action concept, this issue is further embedded in the University of Oldenburg's organisational structure. This continuity should ensure both the implementation of the measures as well as their monitoring and associated communication even after completion of the initial project. The fundamental goal in this regard is to give climate action a permanent institutional foothold in the university.

8.1 Continuity of climate action management

A key aspect in the continuity of the university's climate action activities is staff responsibility within the organisational structure in the form of a climate action management team.

The climate action management team's duties include in particular:

- Overall responsibility for the implementation of the climate action concept at the University of Oldenburg
- Coordination of the university's climate action activities
- Key point of contact for climate action at the university
- External advocacy of climate action at the university
- Planning and control of (sub-)projects from the climate action concept
- Monitoring of climate action measures and reductions in GHG emissions
- Organisation and management of participation opportunities for all university members
- Communication of current and planned climate action measures as well as general communication on the topic of climate action at the university incl. public relations
- Reporting to the relevant university governing committees
- Involvement of further stakeholders & networking
- Identifying sources of funding and acquiring funding
- Advising university management on climate action decisions

The climate action management team should not only implement and manage planned measures but also consistently promote ambitious climate action in the university.

The climate action management team works closely together with the various stakeholders university-wide on the issue, in particular with Division 4 (Facility Management). Strengthening and maintaining internal and external networks and involving the entire university community play an important role in this regard.

The current position of climate action manager will be made permanent at the end of the initial project with a half-time position within the Presidential Board. In addition, the follow-up project will be applied for via the Local Authorities Guideline, meaning that climate action management can be allocated a full-time position.

Moreover, we recommend establishing work on climate action and sustainability in the university in the long term and incorporating it structurally and in terms of staff so that climate action management is viable. This also applies to areas of work in the university that are intimately involved in the implementation of climate action measures.

In addition, adequate financing from the Lower Saxony state government for its state administration is vital and urgently required for the implementation and continuity of the envisaged climate action measures.

8.2 Control of climate action management

Overarching control of the processes is a necessary addition to the operational implementation of the climate action concept.

During the development of the climate action concept, the process was monitored by the Climate neutral uni research group. As this structure has already proven successful in the initial project, the research group will also monitor the implementation of the concept and act as a steering group here. All status groups should continue to be equally represented in the steering group. Regardless of this, the research group continues to be open to all interested parties in the university community.

The research group will also come together on average once a month in the future and discuss the current progress of the project in the implementation of the climate action concept. In doing so, the research group serves as a sounding board for the work of the climate action management team and provides feedback on the next steps. For this purpose, the research group keeps the overarching process in mind and regularly adopts a strategic perspective. This includes, for instance, advice on what measures should be implemented next. The research group is also tasked with critically discussing intermediate and end results, achievement of objectives and improvement measures.

Furthermore, regular reporting to the governing committees shall be maintained even after completion of the initial project.

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