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INTEGRATED CLIMATE ACTION CONCEPT

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1 Introduction & project description

The development of an integrated climate action concept is the result of a project that is funded by the federal government (Federal Ministry for Economic Affairs and Climate Action) within the framework of the Local Authorities Guideline. This is the funding priority *4.1.8 A) Initial Project Climate Action Concept and Climate Action Management*. The project is currently supported by *Zukunft - Umwelt - Gesellschaft (ZUG) gGmbH*, which took over the projects from project management company *Projektträger Jülich (PtJ)* in January 2022. 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 main focus of the funding is the establishment of a staff position in the institution to oversee and coordinate the process from the beginning.

At the University of Oldenburg, the project was applied for in January 2021 and approved on 27/05/2021, with the climate action manager starting her work on 01/06/2021. The application for funding for the work of a research group with a cross-section of all university members (*WG Climate-neutral university*, see Chapter 6.1.3.1 on internal stakeholders) 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. This involvement was closely linked with the involvement of Scientists for future, who had, for example, already held an event focused on "Internationalisation and Sustainability" and organised a voluntary commitment to refrain from taking short-haul flights. Furthermore, these initiatives are driven by a broad commitment in the university community in the areas of research, teaching and administration. The creation of an integrated climate action concept with the associated climate action management therefore also involves consolidating the existing climate action activities at the University of Oldenburg.

2 Analysis of the current situation

This chapter outlines the status quo of climate action activities to date in qualitative and quantitative terms. A description of the framework conditions and activities to date (Chapter 2.1) will be followed by the energy footprint and greenhouse gas emissions (Chapter 2.2 and Chapter 2.3). The energy footprint and greenhouse gas emissions 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 reliably be 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.

2.1 Framework conditions & activities to date

The University of Oldenburg is managed by the state of Lower Saxony and is part of the state administration. The development of the climate action concept and the desired objective of achieving carbon neutrality by 2030 are thus integrated into an overarching framework of goals stipulated in law by the federal government and the state of Lower Saxony (see Chapter 4 for more information). In addition, the university is therefore bound by the requirements of state legislation and guidelines in most areas, which also influence the design and implementation of climate action measures. As a higher education institution, the University of Oldenburg has traditionally had a strong focus on the issue of *climate action and sustainability*.

2.1.1 Research

Note: For synergy reasons, the description of the current situation in the area of research has largely been drawn from the University of Oldenburg's current sustainability report. It was published with a slight delay in 2021 owing to the coronavirus pandemic, and the report period covers 2017-2019. The last paragraph of this sub-chapter has been supplemented to this end.

Since being founded in 1973, the University of Oldenburg has been committed to a comprehensive understanding of environmental and society-related research. It has a history of problem-oriented and interdisciplinary research spanning almost 50 years. The university development strategy adopted in 2016 defines "environment and sustainability with a focus on biodiversity and marine sciences, sustainability and energy of the future" [as one of three key issues] for the university (...).

Oldenburg's sustainability research is characterised by specific thematic areas of social action within the global “Grand Challenges” of sustainable development. Research activities focus in particular on

a. coastal areas as social-ecological systems in the transition between marine and land areas
b. climate and society with a focus on climate change and its societal dimensions, whereby strategies and measures for adapting to climate change are key
c. human-nature-technology interactions, where environmental and sustainability economics, nature conservation and knowledge regulation are of particular importance
d. the overlapping area of integrative systems analysis and transdisciplinary design, in which conceptual approaches such as resilience, social theory, dilemmas of sustainability and integrative methods as well as the design-oriented subject areas of education for sustainable development, development cooperation, sustainability and innovation management and governance are elaborated. International and regional problem areas and their interactions are combined with an interdisciplinary, transdisciplinary and reflexive approach to problem solving.

On a structural level, Oldenburg’s sustainability research is established in various university institutes and schools. Interdisciplinary networking and cooperation is at the heart of COAST’s work and takes place in the integrated centres CENTOS, CEM and ZENARiO as well as the ICBM and Forwind. In addition, much relevant research takes place in the IBU.

The position of climate action manager was also based in this centre due to the overarching networking of COAST. As a result, the climate action concept has also been developed from an organisational point of view from across the university. The strong emphasis on climate and sustainability research at the university also shapes the way the issue is dealt with at the university on a daily basis as academics from across the various departments and beyond show great interest in implementing climate action measures at their own university.

2.1.2 Teaching

Note: The description of the current situation in the area of research has largely been copied over from the University of Oldenburg’s current sustainability report for reasons of synergy. It was published with a slight delay in 2021 owing to the coronavirus pandemic and the report period covers 2017-2019. The last paragraph of this sub-chapter has been supplemented to this end.

The university is responsible for recognising the impact of its actions on the environment, society and the economy and incorporating the topic of sustainable development into its teaching. The University of Oldenburg focuses unequivocally on an interdisciplinary approach to sustainability issues as well as to knowledge transfer between business and science. Topical sustainability issues are taught in-depth not only in subject-relevant Bachelor’s and Master’s degree programmes and the Master's degree programme “Sustainability Economics and Management”, but also in teacher training, medical studies and continuing education programmes.

The university offers nine degree programmes in sustainability. In addition to the Bachelor's degree programmes Environmental Sciences and Sustainability Economics, these include the degree programmes in the Master Cluster "Environment and Sustainability". Since the last sustainability report, the number of students enrolled in these degree programmes has risen by 17% to 1,193. This means that overall, 7.34% of students at the University of Oldenburg are studying a course explicitly related to sustainability. In the 2015/16 winter semester, this figure was still 5.85%. Degree programmes in which students can incorporate sustainability-related courses are not included in the data. These degree programmes include, for example, Engineering Physics, where students can choose to focus on renewable energies, or Business Informatics with a focus on Corporate Environmental Management Information Systems. The actual proportion of students specialising in sustainability is therefore much higher.

In principle, the issue of *climate action and sustainability* at universities is strongly promoted by students and corresponding measures are demanded. This effect is magnified at the University of Oldenburg as a result of the large proportion of students studying sustainability. As well as addressing the topic in university committees in academic administration, many students get involved in voluntary initiatives, e.g. *sneep*, *Students for future*, die *NachDenkstatt* and many more.

2.1.3 Administration and operation

There have been numerous climate action and sustainability activities for years not least in the administration and in the organisation of the day-to-day running of the university. A foundation for this is the University of Oldenburg's energy concept developed back in 2008. The principle is first to measure the energy data, then analyse the energy data and subsequently implement energy savings measures. It is based on measurements with regular recording of the energy consumption. This is done with comprehensive energy management software. The energy consumption is used to determine energy performance indicators for buildings, which are then evaluated. This allows weak spots to be identified and measures to be implemented. Smaller energy-saving measures can then be implemented straight away. When implementing measures, a distinction can be made between operational measures, behavioural measures and building measures. One of the operational measures is that the operation of the technical systems is basically controlled as needed via the building management system. The hours of use for the operation of the technical systems are regularly adjusted here. With a view to optimising energy-saving operation, meetings are regularly held with the technical research groups to implement further energy reductions in operations. Behavioural measures include student initiatives to raise awareness of energy consumption. In addition, energy-saving building measures or building measures for the use of regenerative energies are regularly implemented. The comprehensive expansion of PV systems on the roofs of university buildings is particularly noteworthy, whereby PV systems are currently installed on around 80% of suitable roof surfaces. The peak output of all PV systems installed at the University of Oldenburg is approx. 740 kilowatts after the current expansion. This is the equivalent of an energy yield of 650,000 kilowatt hours a year or the average annual consumption of around 160 4-person households. The university consumes all of the electricity it produces itself. There are

plans to install more PV systems in the future, for example, on buildings A08 and A15 in Wechloy and on new buildings. These systems were primarily financed by the Oldenburg model of intracting. This is an innovative concept for universities. Funds from university reserves are used for energy-saving measures in a cycle. The saved energy costs then go back into the university budget over the term of the intracting agreement. The University of Oldenburg has thus invested more than 16 million euros in the energy-efficient renovation of technical systems (lighting and ventilation systems and cooling units) and roof and facade renovations since 2010. This has reduced energy costs by 2.7 million euros per year and enabled the absorption of energy price increases and additional requirements. Sixteen measures have already been financed and implemented in this way. Since the intracting model is a safeguard for the future, it should be continued. Furthermore, climate action criteria are already systematically taken into account in building and energy measures.

2.2 Energy footprint

The university's energy footprint for 2019 and 2020 is set out in the following chapter. First, the system boundaries are shown (Chapter 2.2.1), then the energy supply is illustrated (Chapter 2.2.2) and finally the energy consumption is presented (Chapter 2.2.3).

2.2.1 System boundaries

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

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.

- Campus Haarentor (incl. the botanical gardens)
- 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.

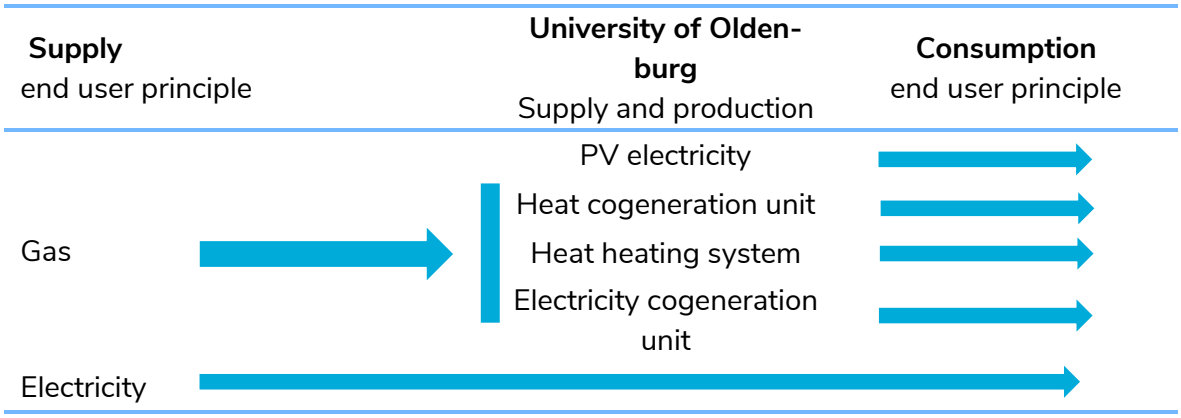

Figure 1 System boundaries of the energy footprint

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	617	611
Botanical gardens	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	123	10,409
Campus Wilhelmshaven	926	988
Botanical gardens	655	735
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	617	611
Botanical gardens	58	66
Electricity production PV	**291**	**402**
Campus Haarentor	291	300

Campus Wechloy	1	102
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	766	817
Botanical gardens	551	618
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

2.3.1 System boundaries

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

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.

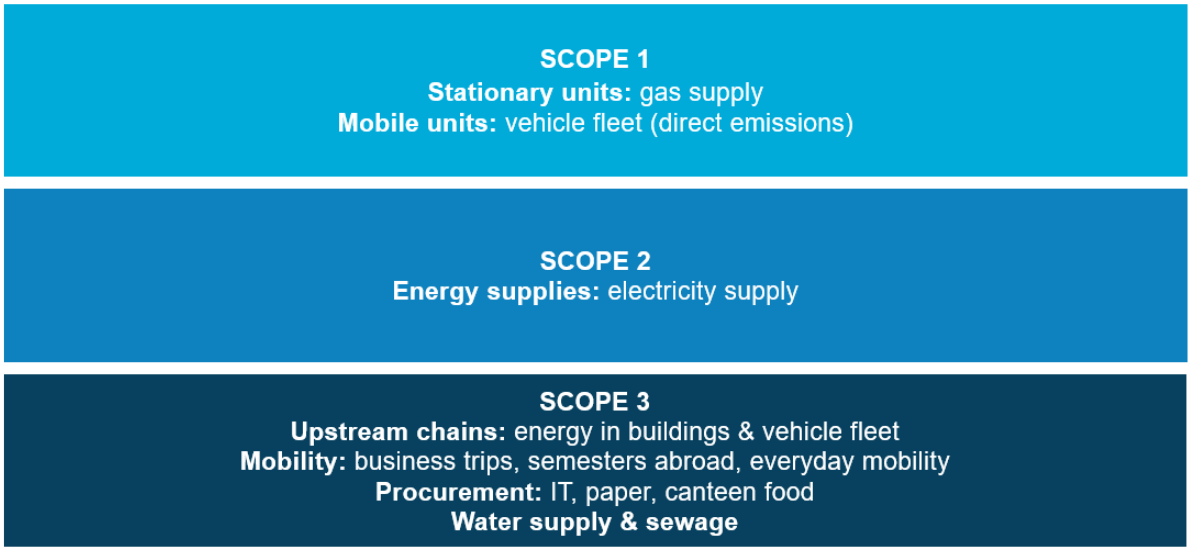

Figure 2 System boundaries of the GHG emissions according to scope 1-3

Scope 1 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, we recommend calculating 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 energy in buildings 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 CO2/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
Energy in buildings	14,430	12,318
Everyday mobility*	4,528	1,129
International mobility & vehicle fleet	1,603	580
Procurement	348	304
University catering	469	198

Table 4 Emissions by sphere of activity in t CO2/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.*

Detailed view

Scope 1 – direct emissions

	2019		2020	
	Consumption	Emissions	Consumption	Emissions
Scope 1	**∑**	**4,667**	**∑**	**5,491**
Gas supply	**28,641,623**	**4,623**	**33,828,101**	**5,460**
Campus Haarentor	12,044,432	1,944	11,287,487	1,822
Campus Wechloy	15,016,027	2,423	20,817,107	3,360
Campus Wilhelmshaven	925,882	149	988,355	160
Botanical gardens	655,282	106	735,152	119
Vehicle fleet	**16,589**	**44**	**11,894**	**32**
Of which diesel vehicles	16,141	43	11,325	30
Of which petrol vehicles	448	1	570	1

Table 5 Consumption (gas supply in kWh/a, vehicle fleet in l/a) and emissions (in t CO_2e/a) – Scope 1

Scope 2 – indirect emissions

	2019		2020	
	Consumption	**Emissions**	**Consumption**	**Emissions**
Scope 2	**∑ National energy mix ∑ Green electricity product**	**7,778 0**	**∑ National energy mix ∑ Green electricity product**	**4,843 0**
Electricity supply	**18,695,967**	**7,778**	**13,232,082**	**4,843**
Campus Haarentor energy provider	8,544,103	3,554	6,951,909	2,544
Campus Wechloy energy provider	9,476,885	3,942	5,603,247	2,051
Campus Wilhelmshaven energy provider	616,794	257	610,932	224
Botanical gardens energy provider	58,186	24	65,994	24

Table 6 Consumption (electricity supply in kWh/a) and emissions (in t Co_2e/a) – Scope 2

Scope 3 – indirect emissions

	2019		2020	
	Consumption	**Emissions**	**Consumption**	**Emissions**
Scope 3	**∑ National energy mix ∑ Green electricity product**	**8,934 8,172**	**∑ National energy mix ∑ Green electricity product**	**4,194 3,562**
Gas supply (upstream chains)	**28,641,623 kWh/a**	**1,004**	**33,828,101 kWh/a**	**1,186**
Campus Haarentor	12,044,432 kWh/a	422	11,287,487 kWh/a	396
Campus Wechloy	15,016,027 kWh/a	526	20,817,107 kWh/a	730
Campus Wilhelmshaven	925,882 kWh/a	32	988,355 kWh/a	35
Botanical gardens	655,282 kWh/a	23	735,152 kWh/a	26
Electricity supply (national energy mix - upstream chains)	**18,695,967 kWh/a**	**1,010**	**13,232,082 kWh/a**	**807**
Campus Haarentor energy provider	8,544,103 kWh/a	461	6,951,909 kWh/a	424
Campus Wechloy energy provider	9,476,885 kWh/a	512	5,603,247 kWh/a	342
Campus Wilhelmshaven energy provider	616,794 kWh/a	33	610,932 kWh/a	37
Botanical gardens energy provider	58,186 kWh/a	3	65,994 kWh/a	4
Electricity supply (green electricity product - upstream chains)	**18,695,967 kWh/a**	**248**	**13,232,082 kWh/a**	**175**
Campus Haarentor energy provider	8,544,103 kWh/a	113	6,951,909 kWh/a	92
Campus Wechloy energy provider	9,476,885 kWh/a	126	5,603,247 kWh/a	74

Campus Wilhelmshaven energy provider	616,794 kWh/a	8	610,932 kWh/a	8
Botanical gardens energy provider	58,186 kWh/a	1	65,994 kWh/a	1
Electricity production PV systems (upstream chains)	**291,497 kWh/a**	**16**	**401,789 kWh/a**	**22**
Campus Haarentor	290,871 kWh/a	16	299,835 kWh/a	17
Campus Wechloy	626 kWh/a	0.03	101,954 kWh/a	6
Vehicle fleet (upstream chains)	**16,589 l/a**	**9**	**11,894 l/a**	**7**
Of which diesel vehicles	16,141 l/a	9	11,325 l/a	6
Of which petrol vehicles	448 l/a	0	570 l/a	0
Business trips	**7,051,141 km/a**	**1,106.5**	**2,367,619 km/a**	**427**
Long-distance rail transport	1,298,365 km/a	0	160,073 km/a	0
Local rail transport	120,163 km/a	6	16,321 km/a	0
Domestic flights	238,865 km/a	52	34,963 km/a	8
International flights	5,009,263 km/a	989	2,012,214 km/a	397
Car	384,485 km/a	59	144,049 km/a	22
Semester abroad	**2,410,685 km/a**	**443**	**670,326 km/a**	**115**
Long-distance coaches	178,522 km/a	5	99,040 km/a	3
Local rail transport	23,005 km/a	1	7,443 km/a	1
International flights	2,209,158 km/a	436	563,843 km/a	111
Everyday mobility	**56,137,283 km/a**	**4,528**	**9,982,139 km/a**	**1,129**
Car (individual)	13,055,610 km/a	2,011	3,542,636 km/a	538
Car (car-sharing)	1,161,412 km/a	179	323,374 km/a	49
Local buses	9,103,016 km/a	756	1,103,958 km/a	123
E-bike	3,744,727 km/a	1	105,062 km/a	0
Motorcycle	91,540 km/a	18	24,141 km/a	5
Scooter	29,461 km/a	0	11,202 km/a	0
Local rail transport	28,951,517 km/a	1,563	4,871,766 km/a	414
IT	**-**	**256**	**-**	**256**
Laptop	326 quantity/a	92	509 quantity/a	143
Computer (without monitor)	321 quantity/a	75	122 quantity/a	28
Monitors	491 quantity/a	43	423 quantity/a	37
Smartphones	18 quantity/a	2	35 quantity/a	3
Tablets	72 quantity/a	13	105 quantity/a	19
Printers	80 quantity/a	5	110 quantity/a	6
Projectors	14 quantity/a	1	6 quantity/a	0
Ink cartridges	1,907 quantity/a	26	1,381 quantity/a	19
Paper	**-**	**66**	**-**	**35**
Toilet paper rolls	90,200 quantity/a	35	45,100 quantity/a	17
Paper consumption (number of sheets)	6,241,600 quantity/a	31	3,488,600 quantity/a	17

Food in canteen	**74,092 kg/a**	**469**	**30,642 kg/a**	**198**
Beef	5,347 kg/a	129	1,626 kg/a	39
Pork	9,859 kg/a	57	2,937 kg/a	17
Poultry	26,638 kg/a	155	7,213 kg/a	42
Game	519 kg/a	6	70 kg/a	1
Meat mixture	6,495 kg/a	43	2,671 kg/a	18
Fish	9,059 kg/a	20	3,412 kg/a	9
Fats and oils	16,174 kg/a	58	12,714 kg/a	72
Water	**-**	**26**	**-**	**13**
Fresh water	62,680 m³/a	9	31,677 m³/a	5
Wastewater	62,375 m³/a	17	29,748 m³/a	8

Table 7 Consumption values and emissions (in t CO_2e/a) – Scope 3

2.4 Further indicators

Note: the text in this sub-chapter has been written by TARA Ingenieursbüro.

GHG emissions per university member

The following table contains the key figure of tonne CO2e per university member for the entire University of Oldenburg.

The total number of university members is obtained by adding together the number of students during the 19/20 and 20/21 winter semester respectively, the professors, researchers as well as technical and administrative staff.

The key figure is shown as dual reporting taking into account both the emission factor for the national energy mix and the emission factor for the green electricity products purchased.

Total	**2019**	**2020**
Total emissions (national energy mix) in t CO_2e/a	21,378	14,528
Total emissions (green electricity product) in t CO_2e/a	12,838	9,054
University members	18,986	18,712
t CO_2e/ university member (national energy mix)	**1.13**	**0.78**
t CO_2e/ university member (green electricity product)	**0.68**	**0.48**

Table 8 GHG emissions per university member

Building-related (without WHV)	**2019**	**2020**
Total emissions (national energy mix) in t CO_2e/a	13,958	11,863
Total emissions (green electricity product) in t CO_2e/a	5,700	6,641
University members	18,986	18,712

t CO_2e/ university member (national energy mix)	**0.74**	**0.63**
t CO_2e/ university member (green electricity product)	**0.30**	**0.35**

Table 9 Building-related GHG emissions per university member

In the report "Development of energy consumption and carbon dioxide emissions in the city of Oldenburg from 1990 to 2018 and preliminary results for 2019 (report 2020)" of the city of Oldenburg, the building-related carbon dioxide emissions for the "Economy including trade, commerce and services" sector are given as 351,000 tonnes (2019).

With 16,267 tonnes (2019) (without WHV campus), the University of Oldenburg accounts for a 4.6% share of the sector.

Energy consumption according to suitable spheres of activity

Energy consumption is shown below according to the sphere of activity for energy in buildings suitable for the university, subdivided into the various campuses.

The data on energy in buildings constitutes end-user energy consumption and includes energy supply from the public grid, electricity production from PV systems and cogeneration units and heat from heating systems and the cogeneration unit. The heat consumption figures are not weather adjusted.

Consumption data	2019	2020
Energy in buildings	**43,731 kWh/a**	**41,844 kWh/a**
Campus Haarentor	19,136 kWh/a	16,899 kWh/a
Campus Wechloy	22,604 kWh/a	22,833 kWh/a
Campus Wilhelmshaven	1,382 kWh/a	1,428 kWh/a
Botanical gardens	609 kWh/a	684 kWh/a

Table 10 Energy consumption by sphere of activity: energy in buildings

Proportion of renewable energies in electricity and heat consumption

The proportion of electricity and heat consumption generated by renewable energies within the University of Oldenburg is shown. There is a calculation both for the University of Oldenburg as a whole and for the individual campuses.

PV systems were installed at the Haarentor and Wechloy campuses during the assessment period. No PV systems are installed at the Wilhelmshaven campus or in the botanical gardens. Therefore, the proportion of renewable energies in electricity consumption here is zero, which means that the total share of RE at the University of Oldenburg is about 50% less than at the Haarentor site.

In terms of heat supply, the proportion of renewable energies, such as heat produced from solar thermal energy, is zero at the University of Oldenburg. The proportion of heat generated by the cogeneration unit is shown as combined heat and power in the next key figure.

Proportion of RE in electricity in %	2019	2020
University of Oldenburg overall	**1.53%**	**2.31%**
Campus Haarentor	3.29%	4.13%
Campus Wechloy	0.01%	1.08%
Campus Wilhelmshaven	0.00%	0.00%
Botanical gardens	0.00%	0.00%

Proportion of RE in heat in %	2019	2020
University of Oldenburg overall	**0.00%**	**0.00%**
Campus Haarentor	0.00%	0.00%
Campus Wechloy	0.00%	0.00%
Campus Wilhelmshaven	0.00%	0.00%
Botanical gardens	0.00%	0.00%

Table 11 Proportion of renewable energies in electricity in heat in %

Proportion of combined heat and power (CHP) in heat consumption

The proportion of heat generated by the cogeneration unit is shown as combined heat and power below. A cogeneration unit was only in operation at the Wechloy site in 2019 and 2020. The CHP proportion therefore stood at 0.00% for the Haarentor and Wilhelmshaven campuses and the botanical gardens. All campuses are included in the overall assessment, which roughly halves the proportion compared to the individual site.

Proportion of CHP in heat consumption in %	2019	2020
University of Oldenburg overall	**0.13%**	**17.29%**
Campus Haarentor	0.00%	0.00%
Campus Wechloy	0.24%	31.60%
Campus Wilhelmshaven	0.00%	0.00%
Botanical gardens	0.00%	0.00%

Table 12 Proportion of combined heat and power (CHP) in heat consumption

Energy consumption in the trade, commerce and services sector – building-related

The university is counted as part of the trade, commerce and services sector. The sector figures at a municipal level are calculated per socially insured employee. The University of Oldenburg deviates from this key figure in line with "Energy consumption in the trade, commerce and services sector in Germany from 2011 to 2013" published by the Frauenhofer Society.

The key figures for electricity consumption and heat consumption are calculated for the reference unit "university member" and the reference unit "student" below. University members include professors, researchers, technical and administrative staff as well as students. The energy data used for the building sector is based on the end user principle and is weather adjusted.

Given that the University of Oldenburg's climate action concept should also be in line with the sectoral objectives of the federal government and Lower Saxony, the reduction path for energy and greenhouse gases must be taken into account when developing measures and setting objectives.

Energy consumption (building-related)

Electricity consumption	**2019**	**2020**
Total	**19,021 kWh/a**	**17,369 kWh/a**
Campus Haarentor	8,835 kWh/a	7,252 kWh/a
Campus Wechloy	9,511 kWh/a	9,440 kWh/a
Campus Wilhelmshaven	617 kWh/a	611 kWh/a
Botanical gardens	58 kWh/a	66 kWh/a

Heat consumption	**2019**	**2020**
Total	**24,710 kWh/a**	**24,475 kWh/a**
Campus Haarentor	10,301 kWh/a	9,647 kWh/a
Campus Wechloy	13,093 kWh/a	13,393 kWh/a
Campus Wilhelmshaven	766 kWh/a	817 kWh/a
Botanical gardens	551 kWh/a	618 kWh/a

Heat consumption (weather-adjusted)

	Climate factor 2019*	2019	2020
Campus Haarentor	1.19	12,259 MWh	11,480 MWh
Campus Wechloy	1.19	15,580 MWh	15,938 MWh
Campus Wilhelmshaven	1.17	896 MWh	956 MWh
Botanical gardens	1.19	655 MWh	735 MWh
Total		**29,390 MWh**	**29,109 MWh**

** Source: German Meteorological Service / There was still no climate factor for the calendar year 2020 at the time of calculating the indicators so the 2019 factor was applied.*

Trade, commerce and services key figures – reference unit students	**2019**	**2020**	**VKW *** (2013)
All students	16,244	15,899	
Spec. electricity consumption kWh / student	1,171	1,092	281
Spec. heat consumption kWh / student	1,809	1,831	1,203

** ISI Frauenhofer (2015): "Energy consumption in the trade, commerce and services sector in Germany from 2011 to 2013"*

Trade, commerce and services key figures – reference unit university members	**2019**	**2020**
All university members	18,986	18,712
Spec. electricity consumption kWh / university member	1,002	928
Spec. heat consumption kWh / university member	1,548	1,556

Table 13 Energy consumption in the trade, commerce and services sector

In the report "Development of energy consumption and carbon dioxide emissions in the city of Oldenburg from 1990 to 2018 and preliminary results for 2019 (report 2020)" of the city of Oldenburg, the building-related energy consumption for the "Economy including trade, commerce and services" sector is given as 1,083 GWh (2018).

With a total energy consumption (2019) of 42,349 MWh (without WHV campus), the University of Oldenburg accounts for a 3.9% share of the sector.

3 Potential analysis & scenario development

The potential analysis (Chapter 3.1) presents the possible opportunities for the university to reduce emissions in the various spheres of activity. In the scenario development (Chapter 3.2), 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 Ingenieurbüro TARA. 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 energy in buildings 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: energy in buildings	**10.9%**	**23.7%**	**41.1%**
Natural gas	2.5%	*11.5%*	25.4%
- Heat production energy efficiency	0.04%	0.24%	0.24%
- Waste heat utilisation in cooling	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 efficiency	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 Energy in buildings

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. For example, 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.

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 CO2e, and increasing it to 80% can save 3,560 tonnes of CO2e 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 has 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 passageways (corridors 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 still not 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 gradually replacing all lighting with LED technology.

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, creating suitable spaces, such as a roof over parking spaces as well as over 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 as sustainable as possible. Among other things, this includes an employees' transport pass (Jobticket) 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 reserved for 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 transpired that every new employee is provided with new and individual IT equipment. Due to the temporary contracts at the university, the turnover 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 number 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	2019	2020	2021	2022	2023	2024
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	2025	2026	2027	2028	2029	2030
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

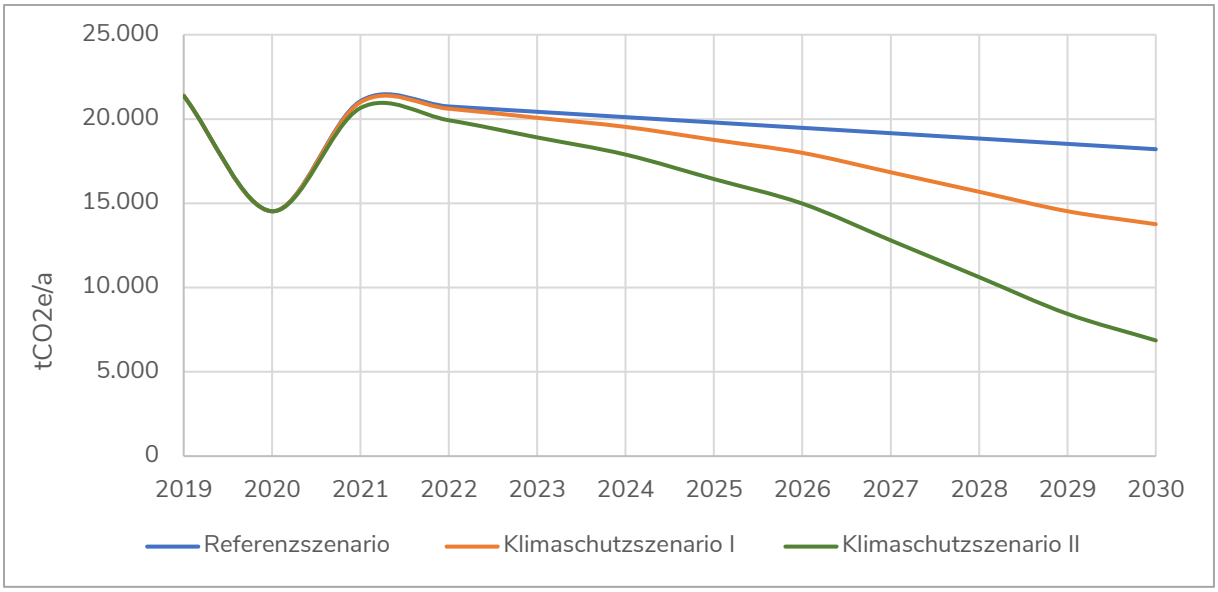

Figure 3 Scenario development taking the national energy mix into account

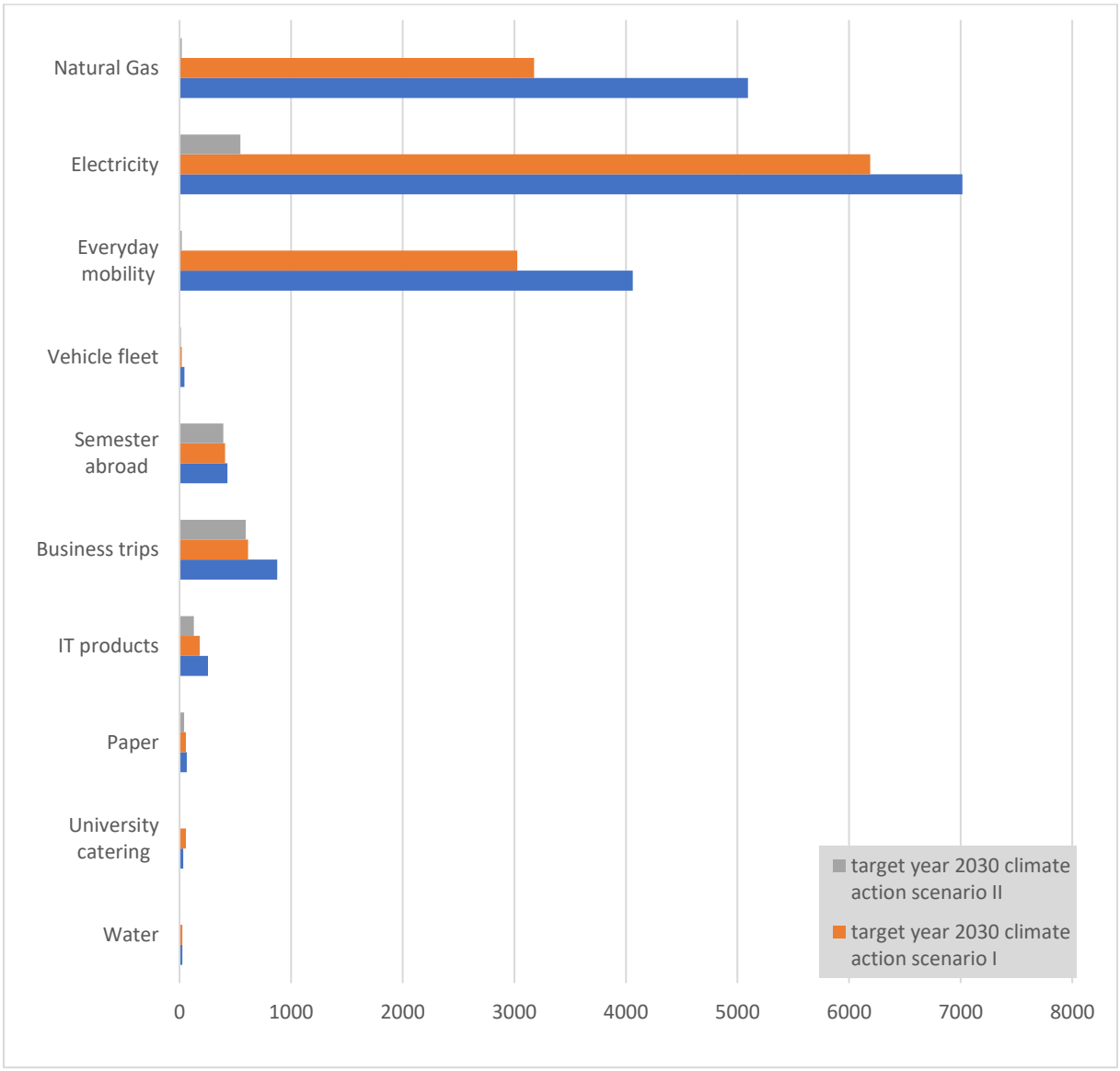

Figure 4 GHG emissions in the target year 2030 - comparison of the scenarios in t CO2e/a

3.2.2 Scenarios taking green electricity products into account

Year	2019	2020	2021	2022	2023	2024
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	2025	2026	2027	2028	2029	2030
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	309

Table 16 Scenarios (green electricity products) in t CO2e e/a

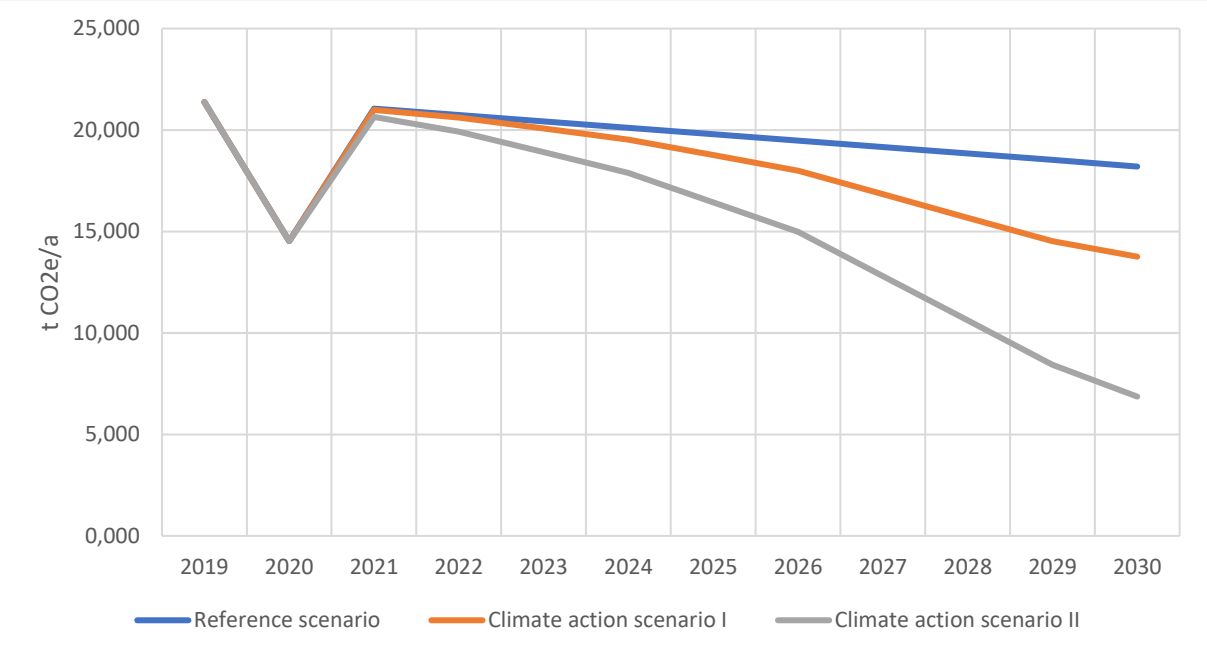

Figure 5 Scenario development taking green electricity products into account

3.2.3 Timeline of reference scenario

Year	2019	2020	2021	2022	2023	2024
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	2019	2020	2021	2022	2023	2024
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 17 Timeline of reference scenario in t CO2e/a,

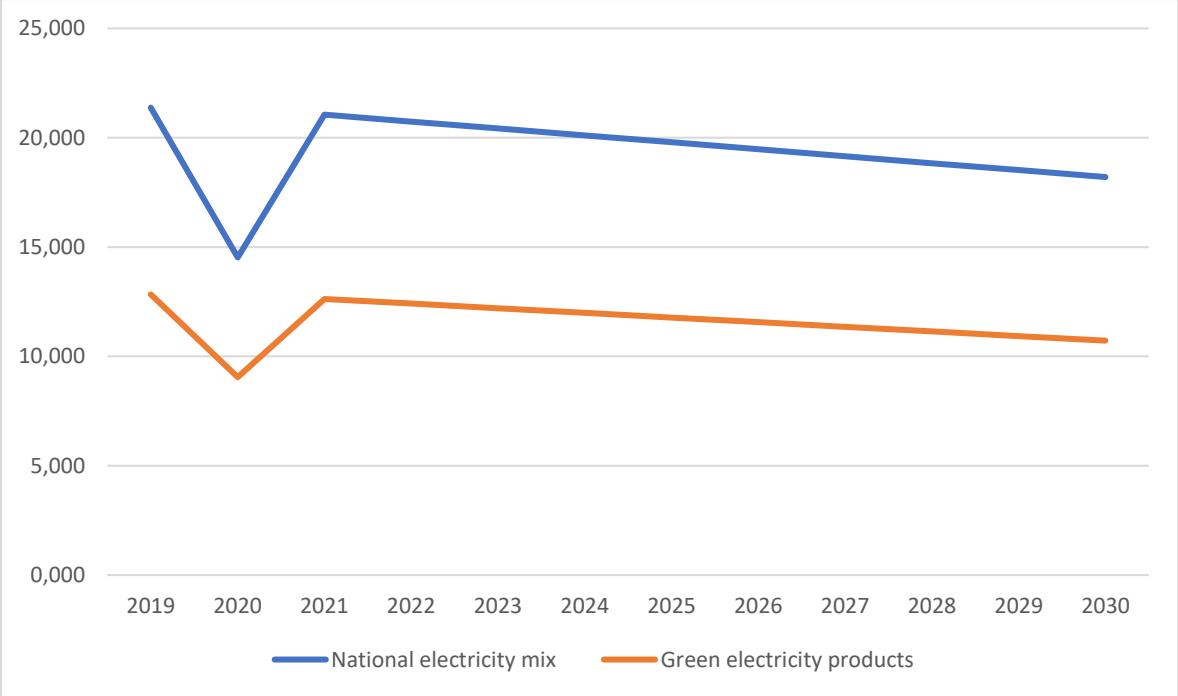

Figure 6 Development of the reference scenario in t CO2e/a

Total GHG emissions (national energy mix)	Target year 2030	Reduction to 2019
	18,207	**14.84%**
Energy in buildings	**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	428	0%
Business trips	876	1%
Procurement	**688**	**16%**
IT	256	0%
Paper	66	0%
University catering	340	1%
Water	26	0%

Table 18 GHG emissions in the target year 2030 (in t CO2e/a) compared to 2019 (in %) - reference scenario

3.2.4 Timeline of climate action scenario I

Year	2019	2020	2021	2022	2023	2024
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	2019	2020	2021	2022	2023	2024
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 19 Timeline of climate action scenario I in t CO2e/a

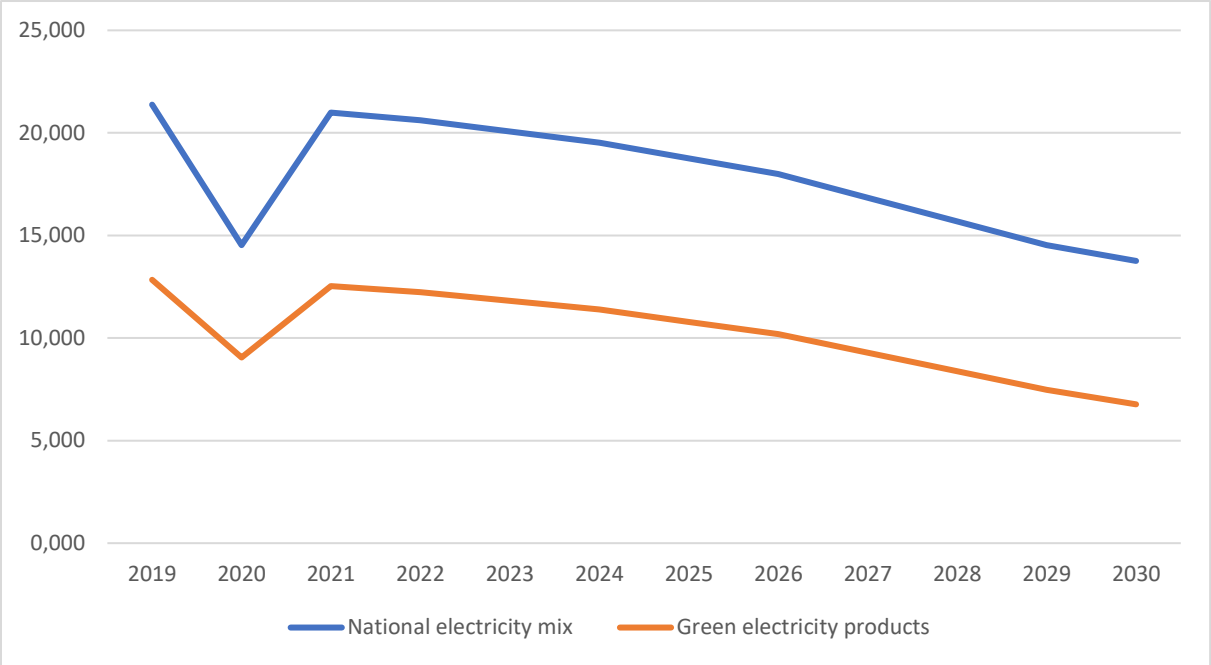

Figure 7 Development of climate action scenario I in t CO2e/a

Total GHG emissions (national energy mix)	Target year 2030	Reduction to 2019
	13,759	**14.84%**
Energy in buildings	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	409	0%
Business trips	615	0%
Procurement	319	2%
IT	181	61%
Paper	57	0%
University catering	58	0%
Water	24	2%

Table 20 GHG emissions in the target year 2030 (in t CO2e/a) compared to 2019 (in %) - climate action scenario I

3.2.5 Timeline of climate action scenario II

Year	2019	2020	2021	2022	2023	2024
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	2019	2020	2021	2022	2023	2024
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	309

Table 21 Timeline of climate action scenario II in t CO2e/a

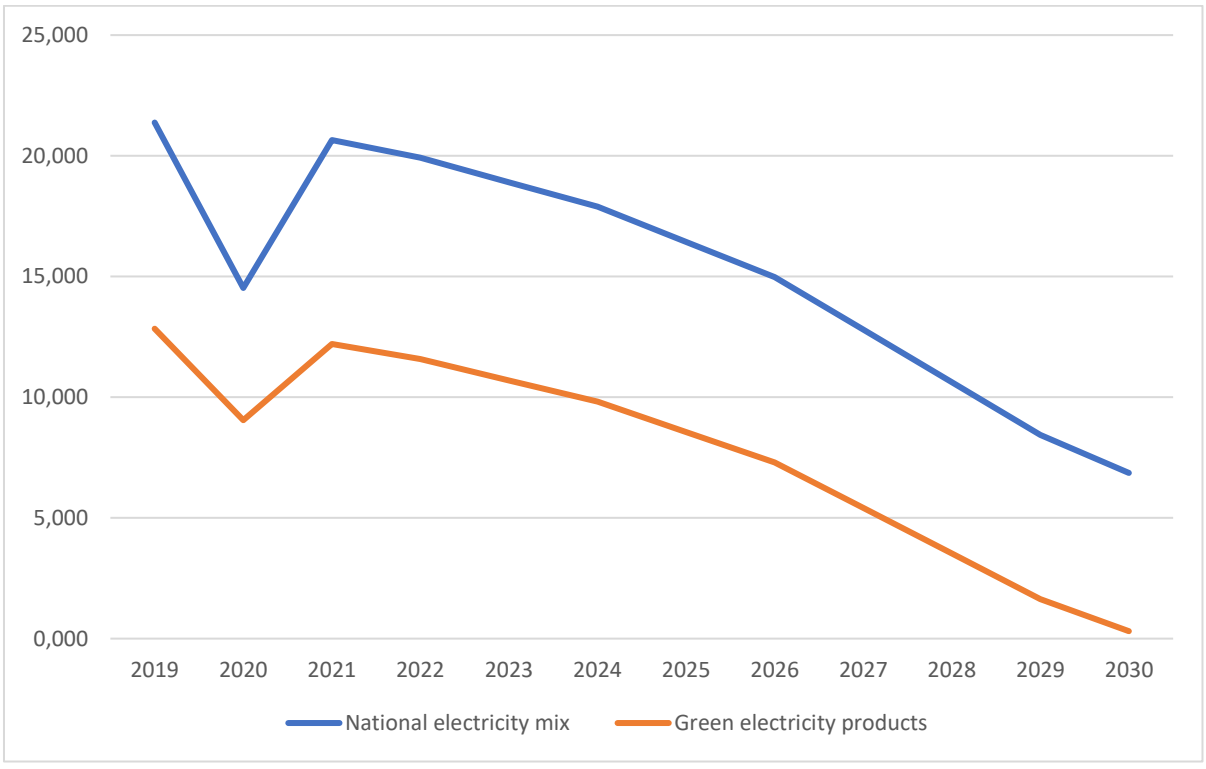

Figure 8 Development of climate action scenario II in t CO2e/a

Total GHG emissions (national energy mix)	Target year 2030	Reduction to 2019
	6,864	**67.89%**
Energy in buildings	5,652	61%
Natural gas	190	25%
Electricity	5,462	16%
Mobility	1,015	16%
Everyday mobility	19	21%
Vehicle fleet	11	0%
Semester abroad	391	0%
Business trips	594	2%
Procurement	197	76%
IT	128	1%
Paper	41	0%
University catering	8	2%
Water	20	0%

Table 22 GHG emissions in the target year 2030 (in t CO2e/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 as the explanation only serves as a classification.

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 23 climate action goals in t CO2e/a and t CO2e/a/p

Green electricity product

Indicator	Current quantity 2019	2026 target	2030 target
Total GHG emissions	12,838 t	7,302 t	309 t
Per capita GHG emissions	0.68 t	0.38 t	0.02 t

Table 24 climate action goals in t CO2e/a and t CO2e/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 (5.1) 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 (Chapter 5.2). Chapter 2.1 provides an insight into the University of Oldenburg's current climate action and sustainability activities.

At this point, it should be mentioned that the time frames actually specified by the project have been adjusted in this concept to the ambitious goal of carbon neutrality by 2030. With this in mind, measures that can be implemented within a year (instead of up to three) are classified as short-term. They are classified as medium-term if they can be implemented within 1-3 years (instead of 3-7). Measures are deemed long-term if they take longer than 3 years to implement from start to finish (instead of longer than 7 years). It should also be pointed out that as a result of the fraught economic outlook and the limited room for manoeuvre, it is not possible to make any real statements about the actual time frame for implementation. Given that this largely depends on the state of Lower Saxony's willingness to invest, the University of Oldenburg can merely commit, within the best of its ability, to implement as a priority the measures that have the greatest savings potential, on the one hand, and initiate those measures over which it has decision-making powers and thus creative leeway, on the other hand.

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 is presented in full in Annex 1.

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 (see Annex 2). 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' (see Chapter 3.1). 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.

5.1.2 List of measures

Discipline	Number	Title
Energy & Construction		**HEAT**
Energy & Construction	**EB_01**	**Heat production energy efficiency**
Energy & Construction	*EB_01_01*	*Switching from centralised water heating to decentralised instantaneous water heaters in areas with low hot water demand in HT & WHV*
Energy & Construction	*EB_01_02*	*Optimising the heating distribution pipes + insulate (maintain insulation)*
Energy & Construction	**EB_02**	**Waste heat utilisation in cooling (use of waste heat from new cooling units to cool the growing data centres)**
Energy & Construction	**EB_03**	**Switching energy source for heat to electricity**
Energy & Construction	EB_03_01	*Commissioning a feasibility analysis for switching to heat pumps at all sites*
Energy & Construction	**EB_04**	**Use of renewable energy for heat (biogas for cogeneration units)**
Energy & Construction	EB_04_01	*Commissioning a feasibility analysis for converting the operation of the cogeneration units with biogas*
Energy & Construction	**EB_05**	**Building envelope (renovation of roofs and windows)**
Energy & Construction	*EB_05_01*	*HT: in particular A01-A04, canteen, library*
Energy & Construction	*EB_05_02*	*W: in particular W1-W4, W07*
Energy & Construction	*EB_05_03*	*WHV: WHV2-3a (damp problem in the basement)*
Energy & Construction	**EB_06**	**Building greening**
Energy & Construction	*EB_06_01*	*Roof and facade greening on new buildings*
Energy & Construction	*EB_06_02*	*Roof and facade greening on existing buildings*
Energy & Construction	**EB_07**	**Reducing the operating times of technical equipment**

Energy & Construction		**ELECTRICITY**
Energy & Construction	**EB_08**	**Ventilation systems energy efficiency**
Energy & Construction	*EB_0_081*	*HT: in particular ventilation system of the library & sports hall*
Energy & Construction	*EB_08_02*	*W: in particular equipment rooms TZ04, TZ07, TZ09 and TZ11*
Energy & Construction	*EB_08_03*	*WHV: in particular old ICBM building*
Energy & Construction	**EB_09**	**Lighting energy efficiency (replacement of fluorescent lamps with LED technology & control)**
Energy & Construction	*EB_09_01*	*W: W00, W08 - W013*
Energy & Construction	*EB_09_02*	*WHV: WHV1 ICBM WHV Schleusenstraße, outdoor lighting*
Energy & Construction	*EB_09_03*	*Motion sensors in corridors, toilets, etc.*
	EB_10	**Optimising cooling units**
Energy & Construction	**EB_11**	**Use of renewable energy for electricity**
Energy & Construction	*EB_11_01*	*Expansion of PV systems, also on covered parking spaces, bicycle parking spaces, garages, etc.*
Energy & Construction	*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*
Energy & Construction	*EB_11_04*	*Review energy recovery from WindLab*
Energy & Construction	*EB_11_05*	*Commitment at the state level to improving the quality of green electricity*
Energy & Construction		**GENERAL**
Energy & Construction	**EB_12**	**Energy cost budgeting**
Energy & Construction	**EB_13**	**Communication**
Energy & Construction	*EB_13_01*	*Communication & encouragement of energy-saving behaviour among university members*
Energy & Construction	*EB_13_02*	*Visualisation of consumers*
Energy & Construction	*EB_13_03*	*General accompanying communication of planned and implemented measures*
Energy & Construction	**EB_14**	**Review for constructing local heating centres at municipal level**
Energy & Construction	**EB_15**	**More efficient space management**
Energy & Construction	*EB_15_01*	*Review and development of new space occupancy concepts, e.g. with monetary space allocation schemes & pilot projects in individual schools, departments, research groups, etc.*
Energy & Construction	*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*
Energy & Construction	**EB_16**	**Moving the schools' small data centres to the Data Centre**

Energy & Construction	**EB_17**	**Buildings & building projects**
Energy & Construction	*EB_17_01*	*Clear prioritisation of sustainability and climate action criteria for construction projects*
Energy & Construction	*EB_17_02*	*Promoting BNB certification for existing & new buildings*
Energy & Construction	*EB_17_03*	*GHG-based consideration when weighing up renovation or new building*
Energy & Construction	*EB_17_04*	*Favouring carbon-neutral construction materials for new buildings*
Energy & Construction	**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**
Ecology	**ÖC_02**	**Facade & roof greening**
Ecology	*ÖC_02_01*	*for new buildings*
Ecology	*ÖC_02_02*	*for existing buildings*
Ecology	**ÖC_03**	**Checking the outdoor lighting in terms of insect protection**
Ecology	**ÖC_04**	**Developing a comprehensive usage concept for all spaces.**
Ecology	**ÖC_05**	**Biodiverse design of green spaces**
Ecology	*ÖC_05_01*	*Unseal surfaces*
Ecology	*ÖC_05_02*	*Insect-friendly installations on the campus (flowering meadows & shrubs)*
Ecology	*ÖC_05_03*	*Mow lawns less & create litter meadows*
Ecology	*ÖC_05_04*	*Creation of biotopes*
Ecology	**ÖC_06**	**More environmental education on the campus, e.g. with information boards etc.**
Everyday mobility	**AM_01**	**Promoting e-mobility**
Everyday mobility	AM_01_01	*Converting vehicle fleet to electric vehicles*
Everyday mobility	AM_01_02	*Charging stations for electric cars*
Everyday mobility	**AM_02**	**Parking management**
Everyday mobility	**AM_03**	**Package of measures for bicycle infrastructure & promotion**
Everyday mobility	AM_03_01	*Enhance & promote bicycle repair (e.g. pump stations)*
Everyday mobility	AM_03_02	*Bicycle hire for students & staff*
Everyday mobility	AM_03_03	*Placing bicycles that can be hired at the Wechloy train station*
Everyday mobility	AM_03_04	*Cargo bikes in the university's vehicle fleet for transport*
Everyday mobility	AM_03_05	*More covered, lockable spaces with charging facilities*
Everyday mobility	AM_03_06	*Charging infrastructure for e-bikes*
Everyday mobility	AM_03_09	*Set up changing rooms & shower facilities in new buildings*
Everyday mobility	AM_03_10	*Commitment at the municipal level to better cycle paths to the university*
Everyday mobility	AM_03_11	*Bicycle routes & maps with focus on the university*
Everyday mobility	AM_03_12	*Enabling (financial) support for bicycles, e-bikes, cargo bikes, etc.*
Everyday mobility	AM_03_13	*Converting parking spaces to bicycle spaces*
Everyday mobility	**AM_04**	**Promotion of public transport**
Everyday mobility	AM_04_01	*Commitment to better public transport links to the university from rural areas*
Everyday mobility	AM_04_02	*Commitment to improved connections at Wechloy train station*
Everyday mobility	AM_04_03	*Commitment to increased bus service at peak times in everyday university life*

Everyday mobility	*AM_04_04*	*Better information provided about the employees' transport pass (Job-ticket)*
Everyday mobility	**AM_05**	**Action & communication**
Everyday mobility	*AM_05_01*	*Mobility challenges between schools, research groups, organisation units, etc.*
Everyday mobility	*AM_05_02*	*Carrying out information campaigns*
Everyday mobility	**AM_06**	**Governance, partnerships & other**
Everyday mobility	*AM_06_01*	*Permanent networking of stakeholders*
Everyday mobility	*AM_06_03*	*Founding a mobility research group / mobility round table*
Everyday mobility	*AM_06_04*	*Developing a mobility concept for the WHV site*
Everyday mobility	*AM_06_05*	*Introducing and using a car sharing platform*
Everyday mobility	*AM_06_06*	*General downsizing of the university's own vehicle fleet and promotion of car sharing*
International Mobility	**IM_01**	**Strategic direction**
International Mobility	*IM_01_01*	*Integration of climate action & sustainability (incl. trade-off) in internationalisation strategy & work*
International Mobility	*IM_01_02*	*Focus on Europe when selecting strategic partners and focus on European networks*
International Mobility	*IM_01_03*	*Holding a series of events to address and discuss the trade-off between internationalisation & climate action*
International Mobility	**IM_02**	**Reduction in emissions of business trips**
International Mobility	*IM_02_01*	*Reduction in flying, in particular short-haul flights*
International Mobility	*IM_02_02*	*Introduction of an internal compensation mechanism for flying*
International Mobility	*IM_02_03*	*Business trips by plane only in Economy*
International Mobility	*IM_02_04*	*Commitment to offer hybrid option for international conferences & project meetings*
International Mobility	**IM_03**	**Reduction in emissions from student mobility**
International Mobility	*IM_03_01*	*Provide better advice with a focus on Europe*
International Mobility	*IM_03_02*	*Provide better information on the funding options for sustainable transport*
International Mobility	*IM_03_03*	*Increased promotion of summer schools in Europe or in the vicinity to reduce long-distance and short-stay travel*
International Mobility	**IM_04**	**Communication offer to make emissions visible**
Resources	**RE_01**	**Increase the useful life & lifetime of products & materials**
Resources	*RE_01_01*	*Setting up an internal recycling centre*
Resources	*RE_01_02*	*Promoting the shared use of products*
Resources	*RE_01_03*	*Establishing and enhancing repair options*
Resources	**RE_02**	**Revising the purchasing policy in terms of sustainability and climate action criteria**
Resources	**RE_03**	**Revising & introducing central standards (e.g. no purchase of single workstation printers for offices)**
Resources	**RE_04**	**Examination of further options for giving away items, e.g. through auctions or similar means.**
Resources	**RE_05**	**Development & implementation of a concept for sustainable laboratory management**

Research, studying & teaching	**FS_01**	**Categorisation of research projects & courses by SDGs**
Research, studying & teaching	**FS_02**	**Development & application of a GHG footprint for research projects**
Research, studying & teaching	**FS_03**	**Inclusion of research projects for developing and implementing measures**
Research, studying & teaching	FS_03_01	*Establishing and maintaining a subject pool from climate action projects for theses from various subject areas*
Research, studying & teaching	FS_03_02	*Communicating problems from climate action projects to departments for possible handling as research projects*
Research, studying & teaching	FS_03_03	*Implementing & supervising larger projects through research projects, e.g. in the area of energy*
Research, studying & teaching	**FS_04**	**Establishing internal expert councils for various topics**
Research, studying & teaching	**FS_05**	**Enhanced teaching of the topics of "Climate & Sustainability"**
Research, studying & teaching	FS_05_01	*Subject-related integration in all degree programmes*
Research, studying & teaching	FS_05_02	*New climate teaching programmes, e.g. Master's degree in climate*
Research, studying & teaching	FS_05_03	*Certificate programme for climate action & sustainability*
Research, studying & teaching	FS_05_04	*Promotion of interdisciplinary teaching, e.g. of natural and social sciences*
Research, studying & teaching	FS_05_05	*Raising teachers' awareness of sustainability and climate-related issues ("train the trainer")*
Governance	**GO_01**	**Staff implementation in the university**
Governance	GO_01_01	*Introduction of a half-time staff position on the Presidential Board*
Governance	GO_01_02	*Extension of the project through follow-up projects of the Local Authorities Guideline*
Governance	**GO_02**	**Governing committees, networks, research groups etc. within the university**
Governance	GO_02_01	*Continuation of the Climate-neutral university research group as steering group*
Governance	GO_02_02	*Introduction of voluntary local sustainability officers or building managers*
Governance	**GO_03**	**Cost Accounting**
Governance	GO_03_01	*Establishing GHG emissions every two years*
Governance	GO_03_02	*Examination for participation in relevant rankings on the topic of climate action & sustainability*
Governance	GO_03_03	*Examination of the possibility of introducing an internal carbon price as an overarching steering instrument*
Governance	**GO_04**	**Use of the government funding opportunity for the development of a climate adaptation concept with a climate adaptation manager**
Governance	**GO_05**	**Introduction of a climate action fund**
Communication & miscellaneous	**KS_01**	**Developing guidelines & regulations**
Communication & miscellaneous	KS_01_01	*for sustainability & climate action when working from home*
Communication & miscellaneous	KS_01_02	*for sustainable & environmentally friendly event management*
Communication & miscellaneous	KS_01_03	*for sustainable merchandise & advertising material (e.g. gifts for freshers)*
Communication & miscellaneous	**KS_02**	**Conducting idea competitions and themed campaigns**

Communication & miscellaneous	**KS_03**	**Various thematic offers for further training of staff via PEOP.E**
Communication & miscellaneous	**KS_04**	**Increased communication of measures in the various phases of implementation**

Table 25 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 at the University of Oldenburg.
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 listed 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
Energy & Construction	2	Feasibility studies of renewable energies
Energy & Construction	3	Replacement of ICBM ventilation system
Energy & Construction	4	Switching to LED technology & control
Energy & Construction	5	Expansion of solar panels
Energy & Construction	6	Energy cost budgeting & alternative space management
Energy & Construction	7	Sustainable & environmentally friendly construction
Campus ecology	8	Campus design usage concept
Campus ecology	9	Tree sponsoring programme
Campus ecology	10	More environmentally friendly design of green spaces
Everyday mobility	11	Expansion of electric vehicles
Everyday mobility	12	Parking management
Everyday mobility	13	Promoting bicycle infrastructure
Everyday mobility	14	Improving public transport
International mobility	15	Reduction in flying
International mobility	16	Internal compensation mechanism for flights
International mobility	17	Focus of advice on Europe

Resources	18	Life cycle of products & materials
Resources	19	Central standards & purchasing policy
Research, studying & teaching	20	Categorisation of research & teaching by SDGs
Research, studying & teaching	21	Subject pool for theses
Research, studying & teaching	22	Inclusion of research in the implementation of measures
Governance	23	Internal carbon price
Governance	24	Climate action fund

5.2.1 Energy & construction

Profile 1 – Waste heat utilisation in cooling units

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S**hort-term *(< 1 year)* **M**edium-term *(1-3 years)* **L**ong-term *(> 3 years)*
Energy & Construction	EB_02	Technical measure	Short-term

Title of measure Use of waste heat from new cooling units to cool the growing data centres
Objective and strategy *The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed* Improvement of the use of energy, energy efficiency, use of synergy effects
Starting point *The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)* As a result of digitalisation, there is a growing demand for larger data centres, and this is also the case at the University of Oldenburg. The high-performance computer in the university's Data Centre is currently being upgraded and expanded. As part of the measure, another cooling system is used which directly cools the CPU cores so that the new high-performance computer can be operated at higher temperatures. The resulting waste heat can be used as heating energy in an economical and energy-efficient manner.
Description *The measure is explained here. This may be up to a page long depending on the scope of the measure.* By using a heat pump in the cooling circuit of the high-performance computer, the heat given off is released as heating energy into the university's local heating network. “Using waste heat to heat up buildings constitutes a great savings potential, as large amounts of natural gas can be saved in this way” (Source: Potential analysis).
Initiator *The main stakeholder (initiator, sponsor, organisational unit) is named here.* Division 4
Stakeholders *Other important stakeholders and partners are named here* Ingenieurbüro Ahrens GmbH from Oldenburg
Target group *Who should be prompted by the measure to do something?* This measure does not strive to change the behaviour of a particular target group.
Action steps & timetable *The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).*

The measure is currently being implemented. Commissioning was originally scheduled for Oct/Nov 2022. Due to delays in supplying various components and system parts, the commissioning date has been postponed to the start of 2023.

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

- Installation of a new cooling system
- Installation and integration of a heat pump in the cooling system
- Commissioning new high-performance computers
- Commissioning system control (computer power / cooling system / heat pump)

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

Investment costs:

- approx. €2.4 million for upgrading infrastructure and new cooling system for the Data Centre
- approx. €450,000 to install heat pump

Personnel costs:

- approx. 0.3 FTE TVL (national pay scale) E11 project planning and monitoring (for 2 years)
- approx. 0.1 FTE TVL (national pay scale) E11 + 0.1 FTE TVL E07 operational monitoring (after handover and commissioning, permanent)

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

Funding from central budget and partly through the university's intracting model The measure for installing and integrating a heat pump is funded by the project 'Wärmewende Nordwest' (WWNW) in the amount of €317,250.

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

Reduction in natural gas and thus reduction in CO2 emissions and potentially methane gases

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

Natural gas savings of approx. 2,250 MWh/a

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

458t CO2e/a (Source: Potential analysis & calculations Division 4)

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

Positioning the UOL as a pioneer for universities and operators of energy-efficient data centres throughout Germany.
Role model within the region and beyond.

Accompanying measures

Important accompanying measures are listed with the numbers

- Operation of a heat pump and the associated (additional) demand for electrical energy (EB_03)

Communication

How can the measure be communicated, what accompanying communication is there? As this measure is not controversial, no specific communication is required. The start and successful completion of the measure can be communicated as part of the general communication on the progress of the implementation of the climate action concept.
Information *This includes, for example* - *examples of projects implemented by other stakeholders / universities* - *important recommendations* - *obstacles & risks that must be taken into account* - *social aspects (e.g. acceptance, participation)* - *environmental aspects (e.g. nature conservation, consumption of resources)* - *interactions with climate change adaptation* - *Best practice examples: has the measure already been implemented at other universities?* - *Are there possible funding programmes that can be used to finance the measure?* - *How was the measure developed? (workshop, email, etc.)* The measure comes from the existing action plans of Division 4 and was incorporated into the potential analysis for the climate action concept.

Profile 2 - Feasibility studies

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S**hort-term *(< 1 year)* **M**edium-term *(1-3 years)* **L**ong-term *(> 3 years)*
Energy & Construction	EB_03 EB_04 EB_11_02	Expert opinion for technical measure	Medium-term

Title of measure Conducting feasibility studies to examine the expansion of renewable energies for electricity and heat use
Objective and strategy *The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed* Using fossil fuels for electricity and heat production causes the largest proportion of the university's GHG emissions. Switching to the production of renewable energies has the largest impact on reducing emissions. Feasibility studies for the use of heat pumps, biogas and the university's own wind turbine should therefore be conducted to prepare for subsequent implementation.
Starting point *The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)* Heating Cogeneration units that run on natural gas supply heat to the university. Two of the three cogeneration units have only been commissioned recently, Wechloy site (2019), Haarentor site and ICBM in Wilhelmshaven (end of 2021). From a technical standpoint, the cogeneration units are able to run on biogas.

Electricity

Around 60% of the university's total electricity demand is also covered by the cogeneration units. In addition, electricity is produced via the PV systems installed on the roofs, which cover around 5% of the university's electricity demand. The remaining electricity is purchased from an external electricity provider (approx. 35%). The contract with the electricity provider is a framework contract signed by the state of Lower Saxony for all parts of the state administration. Although this electricity is officially declared as green electricity, it does not meet the sustainability criteria (set by the Federal Environment Agency) and has therefore not been assessed as green electricity when calculating greenhouse gas emissions. There is now almost no spare capacity left on the roofs for further PV systems.

The installation of a wind turbine would in theory be possible at the Wechloy site but requires approval from the city of Oldenburg and the network operator.

Description

The measure is explained here. This may be up to a page long depending on the scope of the measure.

Relates to the sub-measures

- EB_03 Switching energy source for heat to electricity
- EB_04 Use of renewable energy to operate cogeneration units
- EB_11_02 Installation of a wind turbine at the Wechloy & WHV site

Feasibility studies for examining the 3 specified sub-measures should be commissioned in order to initiate the urgent switch to renewable energies. This should enable subsequent targeted action and serves as an important basis for decision-making, including in contact with external partners (e.g. the city of Oldenburg or funding bodies).

Initiator

The main stakeholder (initiator, sponsor, organisational unit) is named here.

Division 4

Stakeholders

Other important stakeholders and partners are named here

Presidential Board, external assessors, the city of Oldenburg (+state of Lower Saxony)

Target group

Who should be prompted by the measure to do something?

This measure does not strive to change the behaviour of a particular target group. Division 4 must commission three expert reports in order to implement this measure.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

- *(For funding, prior application for funding via Local Authorities Guideline)*
- Internal identification and clarification of the requirements and demands for the feasibility studies
- Tendering the contract
- Selection & commissioning of the expert office(s)
- Starting dates with expert office
- Development phase of the feasibility studies
- Presentation of the feasibility studies
- Decision on how to precede after presentation of the results

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

- Call for tenders for expert opinions issued
- Successful commissioning of the expert office(s)
- Presentation of the feasibility studies
- Decision on how to proceed

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

Costs per expert report: approx. €100,000

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

- Funding possible via Local Authorities Guideline through funding priority 4.1.8 c) (funding rate 50%, max. €200,000)
- Funding from Lower Saxony Ministry for Science and Culture (MWK) for "property-related energy concept study/studies"

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

Conducting the feasibility studies does not result in any direct GHG reductions. However, this is a preparatory measure for a comprehensive switch to renewable energies, which would have the following savings:

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

- Savings when using heat from electricity (heat pumps) of approx. 10,000 MWh natural gas with an additional demand for electricity of approx. 3,000 MWh
- Savings with the use of a wind turbine for electricity approx. 90% of the university's total demand (university's electricity consumption in 2019 of 18,698,967 kWh →90% of which is 16,826,370.3 kWh)
- Biogas facility: almost 100% of gas consumption and 60% of electricity consumption (in synergy with the operation of the cogeneration units). (Natural gas consumption 2020: 33,828,101 kWh/a. Electricity consumption in 2020: 13,232,082 kWh →60% of which is 7,939,249.2 kWh)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

- Heat pumps: it is estimated that around 1,960t CO_2e/a could be saved for gas. If the additional electricity demand is accounted for according to the national energy mix, almost 1,410t CO_2e/a is generated.
  →Net saving: 550t CO_2e/a
  When green electricity is used to operate the heat pumps, accounting for the upstream chain results in additional emissions of 39t CO2e/a.
  →Net saving: 1,921t CO_2e/a
- Wind turbine: taking into account the national energy mix → 7,908t CO_2e/a. Taking into account the green electricity mix →218.7t CO_2e/a (without accounting for the upstream chain of the wind turbine)

- Biogas facility: 100% saving of natural gas saves around 6,645 t CO_2e/a (base year here deviates from 2020 in order to take the commissioning of the new cogeneration unit into account). 60% saving of electricity saves around 3,731 t CO_2e/a according to the national energy mix and around 103t CO_2e/a according to the green electricity mix. Around 1,187 t CO_2e/a are to be calculated for the use of biogas.
  →Net saving according to national energy mix: 9,189t CO_2e/a.
  →Net saving according to green electricity mix: 5,561t CO_2e/a

However, these values should merely be understood as approximations, as the exact reduction in GHG emissions cannot be determined yet at this time.

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

The University of Oldenburg is largely carbon-neutral by implementing one or several measures in the energy sector.

Accompanying measures

Important accompanying measures are listed with the numbers

- Continuous expansion of PV systems at all sites, not only on roofs but also, for example, on car parks, etc. (EB_11_01; EB_11_03).

Communication

How can the measure be communicated, what accompanying communication is there?

As this measure is not immediately controversial, no specific communication is required. The commissioning of the expert reports can be announced, as well as the results when they are available.

Later, potential for controversy due to wind turbines in residential and nature conservation areas.

Information

This includes, for example

- *examples of projects implemented by other stakeholders / universities*
- *important recommendations*
- *obstacles & risks that must be taken into account*
- *social aspects (e.g. acceptance, participation)*
- *environmental aspects (e.g. nature conservation, consumption of resources)*
- *interactions with climate change adaptation*
- *Best Practice examples: has the measure already been implemented at other universities?*
- *Are there possible funding programmes that can be used to finance the measure?*
- *How was the measure developed? (workshop, email, etc.)*

There was a call to expand the use of renewable energies both in the workshops and the brainstorming event. Switching to regenerative energies is one of the university's fundamental objectives. Commissioning corresponding feasibility studies is the first step towards implementation.

Profile 3 – Replacement of ICBM ventilation system

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S***hort-term (< 1 year)* **M***edium-term (1-3 years)* **L***ong-term (> 3 years)*
Energy & Construction	EB_08_03	Technical measure	Medium-term

Title of measure Replacement of the ventilation system in the ICBM old building at the WHV site
Objective and strategy *The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed* Optimisation of ventilation regulation in the whole main building. Optimisation of energy efficiency and thus saving electricity and heating energy.
Starting point *The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)* “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 24/7. 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%.” Source: Potential analysis)
Description *The measure is explained here. This may be up to a page long depending on the scope of the measure.* The existing system dates back to the 90s. The ventilation motors are still not controllable by modern energy-saving frequency converters, which directly results in increased electricity consumption. Moreover, the heat exchangers are outdated and worn out, which results in increased heating energy consumption in the building. As part of the measure, the motors and heat exchangers are to be replaced in their entirety including their control technology (currently pneumatic).
Initiator *The main stakeholder (initiator, sponsor, organisational unit) is named here.* Division 4
Stakeholders *Other important stakeholders and partners are named here* State building management
Target group *Who should be prompted by the measure to do something?* This measure does not strive to change the behaviour of a particular target group.
Action steps & timetable *The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).*

This is a renovation measure as part of building maintenance and requires no particular steps / decision-making processes.

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

- Securing funding
- Start of the implementation of the measure
- Commissioning

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

The material costs are estimated to be approx. €600,000.

Staff are already available to operate the system.

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

Funding possible via Local Authorities Guideline through funding priority 4.1.8 c) (funding rate 50%, max. €200,000)

Funding from the university's own budget through the university's intracting model

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

- Reduction of electricity consumption by approx. 100 MWh/a
- Reduction of heating energy consumption by approx. 150 MWh/a

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

- Saving of approx. 100 MWh/a electricity taking the national energy mix into account: 47t CO_2e/a
- Saving of approx. 100 MWh/a electricity taking the green electricity mix into account: 1t CO_2e/a
- Saving of approx. 150 MWh/a natural gas: 29.4t CO_2e/a

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

Example of the implementation of energy-saving measures at the University of Oldenburg to achieve carbon neutrality by 2030

Accompanying measures

Important accompanying measures are listed with the numbers

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Communication

How can the measure be communicated, what accompanying communication is there?

As this measure is not controversial, no specific communication is required. The start and successful completion of the measure can be communicated as part of the general communication on the progress of the implementation of the climate action concept.

Information

This includes, for example

- *examples of projects implemented by other stakeholders / universities*

- *important recommendations*
- *obstacles & risks that must be taken into account*
- *social aspects (e.g. acceptance, participation)*
- *environmental aspects (e.g. nature conservation, consumption of resources)*
- *interactions with climate change adaptation*
- *Best Practice examples: has the measure already been implemented at other universities?*
- *Are there possible funding programmes that can be used to finance the measure?*
- *How was the measure developed? (workshop, email, etc.)*

The measure comes from the existing action plans of Division 4 and was incorporated into the potential analysis for the climate action concept.

Profile 4 – Switching to LED technology & control

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S**hort-term (< 1 year) **M**edium-term (1-3 years) **L**ong-term (> 3 years)
Energy & Construction	EB_09	Technical measure	Medium-term

Title of measure

Replacement of fluorescent lamps with LED technology & control via motion sensors and building management system

Objective and strategy

The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed

Reduces electricity demand for lighting and therefore reduces emissions from the area of energy in buildings. Replacing luminaires with LEDs thus increases energy efficiency.

Starting point

The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)

"Replacing fluorescent lamps with LED technology has great savings potential, especially in rooms with a long lighting time, such as passageways (corridors 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 up to 10% if there were a complete switchover to LED technology and modern control technology (motion sensors, building management system).

Particularly great savings potential was identified in the following buildings, among others, where LED technology is still not / hardly used:

Haarentor:

- A06 – A11, (A14)
- Canteen building
- Sports building

Wechloy

- W00 energy laboratory,

- Corridors/stairwells W01-W05
- 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 gradually replacing all lighting with LED technology with additional motion sensors (especially in hall areas and stairwells)" (Source: Potential analysis)

Description

The measure is explained here. This may be up to a page long depending on the scope of the measure.

Gradual renovation and replacement of light fittings with LED.

Initiator

The main stakeholder (initiator, sponsor, organisational unit) is named here.

Division 4

Stakeholders

Other important stakeholders and partners are named here

Specialist electrical contractors (temporary contractors, successful bidders in tenders).

Target group

Who should be prompted by the measure to do something?

This measure does not strive to change the behaviour of a particular target group.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

Replacement is required. Conventional light sources will be discontinued in 2023 and are no longer available or replaceable.

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

- Turning off permanently switched-on lighting equipment that is not necessary, installation of motion sensors and adaptation/integration of the building management system
- Converting passageways (corridors, stairwells, foyers, etc.) to LED
- Converting all lighting equipment (offices, storage rooms, sanitary facilities, etc.) to LED

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

Investment costs for conversion to LED and motion sensors are approx. 2.5 million euros including 22% ancillary building costs (personnel and planning)

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

Funding possible via Local Authorities Guideline through funding priority 4.1.8 c) (funding rate 50%, max. €200,000)

Funding from the university's own budget through the university's intracting model

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

Roughly estimated approx. 1,000 MWh/a

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

Savings potential of 433t CO2e/a for 75% implementation. Savings potential of 578t CO2e/a for 100% implementation. Savings potential of 619t CO2e/a for 100% implementation + control. (Source: Potential analysis)

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

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Accompanying measures

Important accompanying measures are listed with the numbers

/

Communication

How can the measure be communicated, what accompanying communication is there?

As this measure is not controversial, no specific communication is required. The start and successful completion of the measure can be communicated as part of the general communication on the progress of the implementation of the climate action concept.

Information

This includes, for example

- *examples of projects implemented by other stakeholders / universities*
- *important recommendations*
- *obstacles & risks that must be taken into account*
- *social aspects (e.g. acceptance, participation)*
- *environmental aspects (e.g. nature conservation, consumption of resources)*
- *interactions with climate change adaptation*
- *Best Practice examples: has the measure already been implemented at other universities?*
- *Are there possible funding programmes that can be used to finance the measure?*
- *How was the measure developed? (workshop, email, etc.)*

The measure comes from the existing action plans of Division 4 and was incorporated into the potential analysis for the climate action concept.

Profile 5 – Expansion of solar panels

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S**hort-term (< 1 year) **M**edium-term (1-3 years) **L**ong-term (> 3 years)
Energy & Construction	EB_11_01	Technical measure	Medium-term

Title of measure

Further expansion of PV systems at all sites

Objective and strategy

The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed

The rapid expansion of renewable energies in the university's electricity supply is vital for reducing GHG emissions in order to reduce the proportion of fossil fuels in the university's energy mix.

Starting point

The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)

The expansion of PV systems has already made great headway at the university's sites.
"From 2017 to 2019, the university installed a total of twelve photovoltaic systems having a peak power of 500 kilowatts in two stages. It started off in 2017 at the Haarentor campus with the library, building A02 (the "bridge" over Uhlhornsweg), the auditorium's domed roof and other buildings. The Wechloy campus followed in 2019, where parts of the main building and the NeSSy research site are now fitted with photovoltaic modules.

The peak power of all photovoltaic systems installed at the University of Oldenburg is around 740 kilowatts after the current expansion, which is the equivalent of an energy yield of around 650,000 kilowatt hours per year or the average annual consumption of around 160 4-person households. The university consumes all of the electricity it produces itself. This leads to a reduction of around 400 tonnes of CO2 per year. The proportion of electricity produced by photovoltaic systems in the university's total electricity consumption thus rises to around 4 percent." (Source: UOL press release[1])

Description

The measure is explained here. This may be up to a page long depending on the scope of the measure.

Despite the progress already made, the expansion of PV installations can be pursued further.
For example, further PV systems can be installed at the following sites:

- Open-air sports hall on Uhlhornsweg (Haarentor site)
- Building A08 and A15 (Haarentor site)
- Building W02, W30, W32 and W37/38 (Wechloy site)
- Generally on all new university buildings
- Cover parking spaces and place PV systems on them

[1] https://www.presse.uni-oldenburg.de/mit/2022/055.html

- Install PV modules in facades

Initiator

The main stakeholder (initiator, sponsor, organisational unit) is named here.

Division 4

Stakeholders

Other important stakeholders and partners are named here

Engineering office iNeG from Bad Iburg, Möller GmbH from Diepholz, ZSD Solar GmbH from Emsbüren, Eismann GmbH from Oldenburg

Target group

Who should be prompted by the measure to do something?

This measure does not strive to change the behaviour of a particular target group.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

Commissioning of further PV systems is scheduled for the end of 2023.

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

Integration into the measurement concept for energy production and its control between a wide variety of energy production systems such as the cogeneration unit in order to ensure that the PV energy produced is always consumed as a priority and as far as possible 100% in-house. The university's Facility Management continuously analyses and evaluates the measurement data resulting in the optimum operation of PV systems in terms of changing technical and legal requirements for the operator. Measurement data such as the energy yield and reduction in CO2 emissions is evaluated on a monthly or annual basis.

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

Material costs approx. €700,000 personnel costs around 0.5 FTE TVL (national pay scale) E11 (for project management) after commissioning around 0.1 FTE TVL E11 (for operational monitoring)

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

Funding from the university's own budget through the university's intracting model

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

Around 350 MWh for the planned PV expansions of around 400 kWp

What **GHG reductions (t/a)** are expected as a result of implementing the measure?

(If possible quantitative, otherwise semi-quantitative)

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

Around 350 MWh for the planned PV expansions of around 400 kWp

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

With the expansion of approx. 440 kW PV system capacity, CO2 emission reductions are approx. 210 t CO2e/a (Division 4 calculation).

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

Positioning UOL as a pioneer for universities across Germany.
Role model within the region and beyond.

Accompanying measures

Important accompanying measures are listed with the numbers

Roof greening (EB_06)
(Installation of solar thermal systems for hot water and heating energy production)

Communication

How can the measure be communicated, what accompanying communication is there?

As this measure is not controversial, no specific communication is required. The start and successful completion of the measure can be communicated as part of the general communication on the progress of the implementation of the climate action concept.

Information

This includes, for example

- *examples of projects implemented by other stakeholders / universities*
- *important recommendations*
- *obstacles & risks that must be taken into account*
- *social aspects (e.g. acceptance, participation)*
- *environmental aspects (e.g. nature conservation, consumption of resources)*
- *interactions with climate change adaptation*
- *Best Practice examples: has the measure already been implemented at other universities?*
- *Are there possible funding programmes that can be used to finance the measure?*
- *How was the measure developed? (workshop, email, etc.)*

The measure comes from the existing action plans of Division 4 and was incorporated into the potential analysis for the climate action concept as well as being called for at the workshops.

Profile 6 – Energy cost budgeting & alternative space management

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S**hort-term (< 1 year) **M**edium-term (1-3 years) **L**ong-term (> 3 years)
Energy & Construction	EB_12 EB_15	Organisational measure	Long-term

Title of measure

Examining the establishment of energy cost budgeting and monetary incentive models as well as alternative space management

Objective and strategy

The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed

The introduction of energy cost budgeting is intended to involve the schools and other university institutions in energy costs and energy-saving measures. This is intended to further incentivise saving energy and thus reducing GHG emissions from electricity and heat consumption.

This should also be combined with the introduction of monetary incentive models and alternative space management so that spaces and rooms are allocated more efficiently. As well as having an energy-saving effect, this can ultimately also prevent the many emissions that possible new buildings would produce.

Starting point

The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)

Until now, energy costs have only been paid for from the central university budget. There is currently no programme for schools, institutions and users to contribute to energy costs. There are currently no monetary incentive models in the university either. Room distribution and allocation in schools is decentralised.

Following the pandemic, the right to remote work was set at a level of 30% of weekly working hours.

Since there is no time recording for employees in the academic sector, this requirement is applied much more flexibly in practice. However, since there is still a right to an office or an individual office, many office spaces are frequently unused, with some not being used at all.

Moreover, laboratories are sometimes hardly used or not used for prolonged periods. It may be possible to improve usage with a room booking system, in this case laboratory booking. This would save energy and possibly also usable space.

Description

The measure is explained here. This may be up to a page long depending on the scope of the measure.

Energy cost budgeting

Energy cost sharing of the institutions in relation to the space provided. A distinction must be made here between energy-intensive use such as in laboratories, air-conditioned

rooms and rooms with special technical equipment and low-energy use such as in office spaces and seminar rooms in order to guarantee a fair allocation of costs. It might be a good idea to install additional energy meters for energy-intensive large equipment and laboratories for billing purposes. Increased interest in funding energy-saving measures by institutions and schools while directly profiting from energy cost savings. Energy cost savings thus directly benefit the schools and their institutions in the long run.

Alternative space management and monetary incentive model
Introduction of a room booking system for office spaces and, if necessary, laboratories to improve the energy efficiency of the use of available space.

Owing to the highly controversial nature of this measure, it is advisable to instigate a participatory process to accompany its introduction.

Initiator
The main stakeholder (initiator, sponsor, organisational unit) is named here.
Presidential Chair

Stakeholders
Other important stakeholders and partners are named here
Division 4, Division 2, schools, top management, heads of units, etc.

Target group
Who should be prompted by the measure to do something?
Financially contributing to energy costs is intended to further incentivise the promotion of active energy saving and energy efficiency measures. Alternative space management is intended to encourage university staff to use the university's office spaces more efficiently.

Action steps & timetable
The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

- Defining as a project in the portfolio board (specifying the project period)
- Creation of the energy cost budgeting concept
- Preparation of the submission for a decision by the Presidential Board
- Appointing additional personnel (Division 4, Division 2)
- Extending the metering and measurement system
- Start of pilot projects
- Implementation of energy cost budgeting according to concept and Presidential Board decision

Success indicators / milestones
Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

a) Creating the concept taking into account
- space distribution
- energy rating of the spaces
- energy metering and measurement
- energy cost sharing
- billing

b) Presidential Board decision

Total expenditure / (start-up) costs
The costs (material costs and personnel costs) for the (start-up) measure are listed here.

Material costs (extending the metering and measurement system, additional licences for space management and energy management software, implementation of IT interfaces and software) approx. €1,000,000 (one-off investment costs) + approx. €50,000/a for maintenance, repairs (annual costs)
Personnel costs approx. 2.5 FTE E11 approx. €180,000/a (annual costs)

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

- Checking for appropriate funding programmes
- Introducing an energy fund at the university

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

Saving heating, cooling and electrical energy

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

Approx. 7,500 possible, equivalent of around 15% of current energy consumption

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

Approx. 3,000 T/a, equivalent of around 15% of current emissions produced at the university

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

Thanks to alternative space management, use of space in the university can be better adapted to the actual usage behaviour and needs of university members. For example, new approaches to working could be tested, comfortable recreation rooms could be set up, etc. Both measures basically entail a cultural change at the university that challenges privilege and can thus also promote equality and equal treatment of university members.
Schools and their institutions can directly contribute financially to energy-saving measures and benefit from them.

Accompanying measures

Important accompanying measures are listed with the numbers

GO_02_02 Introduction of voluntary local sustainability officers or building managers

Communication

How can the measure be communicated, what accompanying communication is there?

Owing to the highly controversial nature of this measure, continuous communication and stakeholder participation is required when implementing the measure. For example, a broad-based research group with representatives from across the whole university spectrum can support the process and help shape the implementation of the measures.

Information

This includes, for example

- *examples of projects implemented by other stakeholders / universities*
- *important recommendations*
- *obstacles & risks that must be taken into account*
- *social aspects (e.g. acceptance, participation)*
- *environmental aspects (e.g. nature conservation, consumption of resources)*

- *interactions with climate change adaptation*
- *Best Practice examples: has the measure already been implemented at other universities?*
- *Are there possible funding programmes that can be used to finance the measure?*
- *How was the measure developed? (workshop, email, etc.)*

Energy cost budgeting: TU Braunschweig
Monetary incentive models: Uni Hannover

Profile 7 – Sustainable & environmentally friendly construction

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** ***S**hort-term (< 1 year)* ***M**edium-term (1-3 years)* ***L**ong-term (> 3 years)*
Energy & Construction	EB_17 EB_15	Package of measures	Medium to long-term

Title of measure
Package of measures for sustainable construction & sustainable construction projects

Objective and strategy
The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed
The emissions from previous and planned construction projects are not integrated into the climate action scenarios that have been developed. However, this emission-intensive sector should not be left out. The package of measures described here is therefore intended to help future construction projects to be designed and managed accordingly in a sustainable and environmentally friendly manner.

Starting point
The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)
Construction projects are currently planned according to state building management criteria.

Description
The measure is explained here. This may be up to a page long depending on the scope of the measure.
Includes the sub-measures:
- EB_17_10 Clear prioritisation of sustainability and climate action criteria for construction projects
- EB_17_02 Promoting BNB certification for existing and 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

Initiator
The main stakeholder (initiator, sponsor, organisational unit) is named here.
Division 4

Stakeholders
Other important stakeholders and partners are named here
Presidential Board, state building management, state of Lower Saxony

Target group

Who should be prompted by the measure to do something?

This measure does not strive to change the behaviour of a particular target group.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

/

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

/

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

Due to the powerful dynamics and associated low level of reliability in estimates of construction costs, the overall expenditure and costs of these measures cannot be quantified with certainty.

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

/

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

Unfortunately, specific reduction values cannot be given as the previously implemented construction projects have not (yet) been accounted for as starting points. In addition, it is not possible to reliably predict the savings effects of these measures.

As a rough classification: in the life cycle assessment, grey energy accounts for about 50% of energy consumption in a new building with the KfW55 standard.

Assuming that energy supply in Germany will have completely switched to renewable energy sources by 2050, the production phase of construction materials (grey emissions) in a new building has a proportion of GHG emissions of up to 80% over the entire life cycle.[2]

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

Enhancing the role of universities and the state in setting an example

Accompanying measures

Important accompanying measures are listed with the numbers

EB_15_01 Alternative space and room management

EB_06_01 Roof and facade greening on new buildings

[2] Source: Mahler et al. (2019). *Energieaufwand für Gebäudekonzepte im gesamten Lebenszyklus*, Federal Environment Agency.

EB_11_01 Expansion of solar panels EB_03 Heat supply with electricity ÖC_05 Biodiverse design of the campus AM_01_02 Charging stations for electric cars AM_03_05 Covered, lockable spaces with charging facilities AM_03_09 Set up changing rooms & shower facilities in new buildings
Communication *How can the measure be communicated, what accompanying communication is there?* Thanks to the exemplary nature of these measures, there is great potential in communicating the university's role as a pioneer.
Information *This includes, for example* - *examples of projects implemented by other stakeholders / universities* - *important recommendations* - *obstacles & risks that must be taken into account* - *social aspects (e.g. acceptance, participation)* - *environmental aspects (e.g. nature conservation, consumption of resources)* - *interactions with climate change adaptation* - *Best Practice examples: has the measure already been implemented at other universities?* - *Are there possible funding programmes that can be used to finance the measure?* - *How was the measure developed? (workshop, email, etc.)* Uni Osnabrück: construction of the student centre to be BNB certified These measures were developed as part of the action workshops and in collaboration with other universities.

5.2.2 Campus ecology

Profile 8 – Campus design usage concept

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S***hort-term (< 1 year)* **M***edium-term (1-3 years)* **L***ong-term (> 3 years)*
Campus ecology	ÖC_04	Strategy	Medium-term

Title of measure Creating a comprehensive usage concept of the sites' spaces taking sustainable and biodiverse design into account
Objective and strategy *The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed* In addition to holistic sustainability aspects, ecological design of the sites also has the advantage of fixing CO2, especially by planting trees. A cross-departmental usage concept should be created for all sites to strategically promote the ecological design of the campus. This concept should identify areas that are suitable for greening.
Starting point

The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)

There are many demands placed on the space on the campuses of the University of Oldenburg. The space and thus the design options are limited in particular due to the fact that parts of the university are located very near the city, such as the Haarentor campus. In addition, there are various requirements for supposedly empty spaces, such as assembly points in the event of a fire, emergency access roads, places of residence for university members, etc. Small environmental projects such as wildflower strips or the campus garden have already been completed in individual cases, but there is still no overarching plan or concept setting out what space is needed for what purpose.

Description

The measure is explained here. This may be up to a page long depending on the scope of the measure.

Thanks to the comprehensive usage concept, the strategic approach can clearly identify the areas where environmental projects are possible. The concept thus provides a sound basis for decision-making for future planting and the sustainable design of the sites.

This measure constitutes the starting point for all further measures envisaged in this area.

Initiator

The main stakeholder (initiator, sponsor, organisational unit) is named here.

Division 4

Stakeholders

Other important stakeholders and partners are named here

Design offices

Target group

Who should be prompted by the measure to do something?

This measure does not strive to change the behaviour of a particular target group.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

- Internal identification and clarification of the requirements and demands for the usage concept
- Tendering the contract
- Selection & commissioning of the expert office(s)
- Starting dates with expert office
- Compiling all relevant documents and plans
- Development phase of the usage concept
- Presentation of the usage concept
- Decision on how to precede after presentation of the results

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

- Successful commissioning of the expert office(s)
- Presentation of the feasibility studies
- Decision on how to proceed

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

€20,000 per site

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

Funding possible via Local Authorities Guideline through funding priority 4.1.8 c) (funding rate 50%, max. €200,000)

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

Qualitative strategic measure, therefore, it is not possible to calculate the energy savings and GHG reductions

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

Consolidating the database. Creating a basic decision-making tool including for other issues and areas.

The issue of climate adaptation should also be considered when developing the usage concepts.

Accompanying measures

Important accompanying measures are listed with the numbers

ÖC_05 Biodiverse and environmentally friendly design of the university's green spaces and facilities

ÖC_01 Tree sponsoring programme

Communication

How can the measure be communicated, what accompanying communication is there?

As this measure is not controversial, no specific communication is required. The start and successful completion of the measure can be communicated as part of the general communication on the progress of the implementation of the climate action concept.

Information

This includes, for example

- *examples of projects implemented by other stakeholders / universities*
- *important recommendations*
- *obstacles & risks that must be taken into account*
- *social aspects (e.g. acceptance, participation)*
- *environmental aspects (e.g. nature conservation, consumption of resources)*
- *interactions with climate change adaptation*
- *Best Practice examples: has the measure already been implemented at other universities?*
- *Are there possible funding programmes that can be used to finance the measure?*
- *How was the measure developed? (workshop, email, etc.)*

This measure was developed during the action workshops.

Can possibly be linked to the implementation of the city of Oldenburg's concept on urban greenery.

Profile 9 - Tree sponsoring programme

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S***hort-term (< 1 year)* **M***edium-term (1-3 years)* **L***ong-term (> 3 years)*
Energy & Construction	ÖC_01	Action programme	Medium-term

Title of measure
Establishing a tree sponsorship programme on the campus
Objective and strategy *The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed* As far as space requirements at the university allow, more ecological areas and tree planting should be approved on the sites. This can be achieved by means of a tree sponsoring programme for alumni and university members etc. The trees planted on the campus can then have a positive impact on greenhouse gas emissions. In addition, this can also have an effect on adaptation to the climate crisis, as trees are, for example, important sources of shade and cool the environment. This in turn can save energy and thus reduce emissions, especially in hot summers.
Starting point *The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)* A survey of vegetation on the Haarentor campus determined that there are 315 trees at the site. The survey for the Wechloy & WHV sites is still pending. Tree planting has so far been funded from the Division 4 budget; no other funding programme has been introduced or utilised to date. However, the botanical gardens already use a similar sponsoring project for funding. It is possible to use donations under certain conditions for the university as long as no substantial aspects of research and teaching are funded with them. At the same time, the potential space where trees can still be planted is limited by the various usage requirements.
Description *The measure is explained here. This may be up to a page long depending on the scope of the measure.* A tree sponsoring programme is an innovative way of funding the greening of the campus. It can generate donations which can in turn be used to plant trees, but possibly also insect-friendly woody plants and flowering meadows, etc. University alumni and members could be possible donors, for example. As part of the programme, you can, for example, sponsor a certain tree over a certain period of time. These sponsorships could then be accompanied by appealing information material and certain actions. The programme should have a range of different forms of participation (e.g. whole sponsorship, shared sponsorship) and a selection of environmental projects (e.g. new tree planting, woody plant for insects, flowering meadow, etc.) and different price categories as a result.

It is also conceivable to include existing trees and plants in the programme.
In addition to the environmental effect of planting itself, a certain identification with the university can be created via the programme, it can be linked to environmental education and actively involve the university members in the maintenance of the campus and in the sustainability commitment.
When planting trees in particular, care should also be taken to select species that can adapt to the consequences of the climate crisis that are already occurring.

The basic requirement for this measure is the development of a comprehensive usage and design concept for the sites (see Profile 8, measure ÖC_04).

Initiator

The main stakeholder (initiator, sponsor, organisational unit) is named here.

Division 4

Stakeholders

Other important stakeholders and partners are named here

Division 2, Alumni Relations, Botanical gardens

Target group

Who should be prompted by the measure to do something?

Depends on how the programme is designed.
Alumni and/or university members are invited to participate (proportionally) in sponsoring a tree or other small planting projects. First and foremost, this includes a financial donation but also, if desired, participation in certain action days or other communication programmes if there is interest.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

/

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

/

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

/

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

Donation revenue acquired from the programme.

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

The CO_2 emissions sequestered by trees depend heavily on their type, age, location and other factors. Deciduous trees store more CO_2 than conifers.
Added value & strategic benefits *Specify qualitatively the regional value-added potential here / benefits for the entire organisation* Aesthetic added value in the eyes of many university members. Promotion of urban greenery, nature conservation and biodiversity. Shading in summer, cooling the sites. Establish or maintain links with alumni depending on the format. Strengthening the involvement of university members and building a stronger connection to the university.
Accompanying measures *Important accompanying measures are listed with the numbers* ÖC_05 Biodiverse and environmentally friendly design of the university's green spaces and facilities ÖC_04 Comprehensive usage concept for green spaces
Communication *How can the measure be communicated, what accompanying communication is there?* Communication is a large and integral part of this measure. This is the case both for the communication at the start of the programme and for the invitation to participate. Moreover, members should be provided with some communication and activity offers.
Information *This includes, for example* - *examples of projects implemented by other stakeholders / universities* - *important recommendations* - *obstacles & risks that must be taken into account* - *social aspects (e.g. acceptance, participation)* - *environmental aspects (e.g. nature conservation, consumption of resources)* - *interactions with climate change adaptation* - *Best Practice examples: has the measure already been implemented at other universities?* - *Are there possible funding programmes that can be used to finance the measure?* - *How was the measure developed? (workshop, email, etc.)* Best practice example for sponsorship programme: TU Dresden The additional advantages have already been listed under the section 'Added value and strategic benefits'.

Profile 10 – More environmentally friendly design of green spaces

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** ***S**hort-term (< 1 year)* ***M**edium-term (1-3 years)* ***L**ong-term (> 3 years)*
Campus ecology	ÖC_05	Package of measures	Medium-term

Title of measure
Biodiverse and environmentally friendly design of green spaces on campus

Objective and strategy

The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed

In addition to holistic sustainability aspects, ecological design of the sites also has the advantage of fixing CO2, especially by planting trees.

Starting point

The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)

Until now, sustainable and environmentally friendly design has not been a focus in the design of green spaces on the sites. However, several small projects have been undertaken in recent years such as the campus garden or the establishment of wildflower strips.

Due to the growth of the university, several new buildings have been added to the sites in recent years with the accompanying soil sealing.

Description

The measure is explained here. This may be up to a page long depending on the scope of the measure.

Includes the sub-measures:

- ÖC_05_02 Insect-friendly installations on the campus (flowering meadows & shrubs)
- ÖC_05_03 Mow lawns less
- ÖC_05_03 Create litter meadows
- ÖC_05_04 Creation of biotopes
- ÖC_05_01 Restoration (unsealing)

The basic requirement for this measure is the development of a comprehensive usage and design concept for the sites (see Profile 8, measure ÖC_04).

Initiator

The main stakeholder (initiator, sponsor, organisational unit) is named here.

Division 4

Stakeholders

Other important stakeholders and partners are named here

Botanical gardens

Target group

Who should be prompted by the measure to do something?

This measure does not strive to change the behaviour of a particular target group.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

As the implementation of this measure depends on the development of the usage concept, the following action steps are not detailed further here.

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

/

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

/

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)
/

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

Qualitative strategic measure, therefore, it is not possible to calculate the energy savings and GHG reductions

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

Aesthetic added value in the eyes of many university members. Promotion of urban greenery, nature conservation and biodiversity.
Environmental education on campus for university members and the public.

Accompanying measures

Important accompanying measures are listed with the numbers

ÖC_04 Comprehensive usage concept for green spaces
ÖC_01 Tree sponsoring programme
ÖC_06 Environmental education on campus

Communication

How can the measure be communicated, what accompanying communication is there?

As this measure is not controversial, no specific communication is required. The start and successful completion of the measure can be communicated as part of the general communication on the progress of the implementation of the climate action concept.

Information

This includes, for example

- *examples of projects implemented by other stakeholders / universities*
- *important recommendations*
- *obstacles & risks that must be taken into account*
- *social aspects (e.g. acceptance, participation)*
- *environmental aspects (e.g. nature conservation, consumption of resources)*
- *interactions with climate change adaptation*
- *Best Practice examples: has the measure already been implemented at other universities?*
- *Are there possible funding programmes that can be used to finance the measure?*
- *How was the measure developed? (workshop, email, etc.)*

Environmentally friendly design relevant as a holistic sustainability aspect, not only for climate action.
Aesthetic design of the campus.
Greenery & a view of nature has lots of beneficial effects on people.
Internal and external environmental education.
Reinforces the university's sustainability and climate action message internally and externally.

These measures were developed as part of the workshops, but the proposals were also frequently sent in by email or were named in the brainstorming event.

5.2.3 Everyday mobility

Profile 11 - Electric vehicles

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S**hort-term *(< 1 year)* **M**edium-term *(1-3 years)* **L**ong-term *(> 3 years)*
Everyday mobility	AM_01	Support	Medium-term

Title of measure Promoting electric vehicles
Objective and strategy *The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed* Switching drive technology from fossil fuels to electricity in private motor vehicles is part of the required mobility revolution for achieving the climate action goals. This involves both converting the university's vehicle fleet to electric vehicles and providing electric charging stations for university members' cars.
Starting point *The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)* Currently (as of 31/12/2020), there are 23 vehicles (not including trailers) in the university's vehicle fleet, 2 of which are electric vehicles. 1 of the vehicles is less than 3 years old, 8 are between 6 and 10 years old and 12 of them are more than 10 years old. The Presidential Chair's vehicle (not electric) is leased. There are currently still no electric charging stations for private cars on campus as there are big obstacles for the university in setting up charging stations itself, in particular due to existing tax law. In 2021, a charging station concept was devised by Division 4 and a path for implementation is currently being developed. In March 2021, the Building-related Electric Mobility Infrastructure Act (GEIG) was enacted. Section 7 regulates the charging infrastructure for non-residential buildings with more than six parking spaces. "Any person who erects a non-residential building which has more than six parking spaces within the building or more than six parking spaces adjacent to the building shall ensure that 1. at least one in three parking spaces is equipped with the cable infrastructure for electric vehicles and 2. in addition, at least one charging point is installed." In addition, Section 10 stipulates that from 1 January 2025, a charging point shall be installed for every non-residential building with more than 20 parking spaces.

Description

The measure is explained here. This may be up to a page long depending on the scope of the measure.

Includes the following sub-measures:

- AM_01_01 Converting the vehicle fleet to electric vehicles
- AM_01_02 Installing electric charging stations at all sites

The vehicle fleet will be gradually replaced by electric vehicles.
The electric charging stations on the university campuses will be implemented in cooperation with external providers who can rent the parking spaces for this purpose and then operate the charging stations on them under their own name. This avoids a situation where the university itself is an electricity supplier and is thus responsible for complying with the associated legal requirements.

Initiator

The main stakeholder (initiator, sponsor, organisational unit) is named here.

AM_01_02: Division 4
AM_01_01: Division 2

Stakeholders

Other important stakeholders and partners are named here

AM_01_02: External providers

Target group

Who should be prompted by the measure to do something?

This measure does not strive to change the behaviour of a particular target group.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

/

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

- Number of electric vehicles in the vehicle fleet
- Number of charging stations at university sites

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

/

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

/

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

Converting 40% of the vehicle fleet to electric vehicles can save 21t CO_2e/a; converting 80% can save 43t CO_2e/a. (Calculation based on miles travelled in 2019).
Added value & strategic benefits *Specify qualitatively the regional value-added potential here / benefits for the entire organisation* Setting an example, especially when representative figures at the university use company electric vehicles.
Accompanying measures *Important accompanying measures are listed with the numbers* AM_06_08 General downsizing of the university's own vehicle fleet and promotion of car sharing AM_03_06 Charging infrastructure for e-bikes
Communication *How can the measure be communicated, what accompanying communication is there?* As this measure is not controversial, no specific communication is required. The start and successful completion of the measure can be communicated as part of the general communication on the progress of the implementation of the climate action concept.
Information *This includes, for example* - *examples of projects implemented by other stakeholders / universities* - *important recommendations* - *obstacles & risks that must be taken into account* - *social aspects (e.g. acceptance, participation)* - *environmental aspects (e.g. nature conservation, consumption of resources)* - *interactions with climate change adaptation* - *Best Practice examples: has the measure already been implemented at other universities?* - *Are there possible funding programmes that can be used to finance the measure?* - *How was the measure developed? (workshop, email, etc.)* This measure was developed as part of the workshops and was also mentioned in emails and the brainstorming event.

Profile 12 - Parking management

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S**hort-term (< 1 year) **M**edium-term (1-3 years) **L**ong-term (> 3 years)
Everyday mobility	AM_02	Regulation	Medium-term

Title of measure Introduction of parking management at all sites
Objective and strategy *The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed* Making driving a less appealing means of transport to reduce emissions in the area of everyday mobility through mobilised private transport.

Starting point

The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)

Parking is currently free of charge for all university members at all sites, and car parking spaces are available free of charge in multi-storey car parks at the Oldenburg Haarentor site. The parking spaces are largely located on the university's own grounds, with the exception of the Haarentor campus, parking area around the rented buildings V02, V03 and V04.

In principle, the outlook for Oldenburg as a cycling city is favourable, and the mobility survey and emails received are testament to the fact that many people welcome and support a shift to environmentally friendly transport.

Intermediate results of the 2022 mobility survey on car use to and from home up to 10 km away:

Staff:

- 0-2 km from university: approx. 6%
- 2-5 km from university: approx. 21%
- 5-10 km from university: approx. 34%
- 24% of staff living in Oldenburg regularly commute to work by car

Students

- 0-2 km from university: approx. 2%
- 2-5 km from university: approx. 9%
- 5-10 km from university: approx. 22%

8% of students living in Oldenburg regularly travel to university by car

Description

The measure is explained here. This may be up to a page long depending on the scope of the measure.

As a result of this measure, it will no longer be possible to park on university premises free of charge. It still has to be examined how this will be implemented from a technical point of view.

There can be an internal participation process to introduce parking management, where the following questions can be discussed, among others:

- pricing
- the consideration of social factors
- potential category systems

Exchanges with external stakeholders are also relevant to implementation:

- landlords who rent out the spaces so that, ideally, parking management can also be introduced there, the university's parking limits also apply there and people can be prevented from switching to these parking spaces if they remain free of charge
- residents & neighbours at the sites
- the city of Oldenburg to raise awareness of increased parking around the university's sites and to encourage the introduction of residents' parking spaces
- surrounding businesses and shops (e.g. Combi at the Haarentor site)

The focus of the internal participation process is how to implement parking management. The external participation and communication is intended to prevent university neighbours being negatively impacted by the introduction of parking management.

Specifically, parking management should be designed carefully so that vulnerable groups are not put at a disadvantage or discriminated against.

Initiator

The main stakeholder (initiator, sponsor, organisational unit) is named here.

Presidential Chair

Stakeholders

Other important stakeholders and partners are named here

Internally: Division 4 for technical implementation, Division 2 for regulation of the finances, Staff Council, Student Council, general university community

Externally: the city of Oldenburg (if necessary, WHV), residents / neighbours of the university, landlords who rent out spaces

Target group

Who should be prompted by the measure to do something?

By ceasing to indirectly subsidise the car as a means of transport through parking management, actual car use should decrease in the context of everyday mobility. University members are to be encouraged to switch to other (more sustainable) forms of transport. The core target group consists of those who live in Oldenburg or near the university who still travel to work/university by car.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

- Identification of relevant stakeholders and setting up the participation process
- Examination and consideration of how to implement the measure (technically) for the university's car parks (barriers, controls by staff, etc.)
- Commissioning & implementing the respective solution
- Discussion and decision on pricing

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

- Actual reduction in the number of parking spaces occupied
- Ask in mobility survey how the travel habits of university members have changed following the introduction of parking management
- Projects implemented from the revenue raised from parking management

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

The costs for this measure cannot yet be reliably estimated at this point, as it first has to be examined how to (technically) implement the measure.

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

Funding possible via Local Authorities Guideline through funding priority 4.1.8 c) (funding rate 50%, max. €200,000)

Refinancing the measure from the revenue raised by parking management

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

It is difficult to calculate GHG reductions resulting from individual measures, especially in the area of mobility, as it is hard to predict who will switch means of transport and from

which means of transport to which other means of transport following implementation of the measure.

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)
In one scenario, where 80% of university members who live within a 10 km radius of the university and travel in by car switch to cycling, there can be a reduction of around 930t CO_2e/a.

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

Parking management is one instrument that can (at least partially) offset the negative effects that private motor vehicles have on various areas of society. As well as environmental damage, negative effects include noise pollution or the damage caused by accidents, for instance.

Accompanying measures

Important accompanying measures are listed with the numbers

It is crucial to implement several measures at the same time or together, especially in the area of mobility. Push and pull measures should be combined for this purpose.

- AM_03 Package of measures for bicycle infrastructure & promotion
- AM_04 Promotion of public transport

Communication

How can the measure be communicated, what accompanying communication is there?

Due to the highly controversial nature of this measure, continuous communication and stakeholder participation is required when implementing the measure. For example, a broad-based research group with representatives from across the whole university spectrum can support the process and help shape the implementation of the measures. At the same time, information can be provided on the use of revenue for climate action measures.

Information

This includes, for example

- *examples of projects implemented by other stakeholders / universities*
- *important recommendations*
- *obstacles & risks that must be taken into account*
- *social aspects (e.g. acceptance, participation)*
- *environmental aspects (e.g. nature conservation, consumption of resources)*
- *interactions with climate change adaptation*
- *Best Practice examples: has the measure already been implemented at other universities?*
- *Are there possible funding programmes that can be used to finance the measure?*
- *How was the measure developed? (workshop, email, etc.)*

This measure was developed as part of the workshops and suggested in emails.
Among the universities in Lower Saxony, only Göttingen has implemented a similar measure so far.

Profile 13 – Promoting bicycle infrastructure

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S**hort-term (< 1 year) **M**edium-term (1-3 years) **L**ong-term (> 3 years)
Everyday mobility	AM_03	Promotion, package of measures	Short to medium-term

Title of measure

Package of measures to promote bicycle infrastructure at all sites

Objective and strategy

The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed

The many sub-measures to promote bicycle infrastructure are combined in this package of measures to make cycling a more appealing form of transport and thus reduce emissions in the area of everyday mobility.

Starting point

The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)

The city of Oldenburg can basically be considered a bicycle city, as reflected in the transport habits of university members.

Bicycle use amongst staff:

- 0-2km: 59.57%
- 2-5km: 68.83%
- 5-10km: 49.17%

Bicycle use amongst students:

- 0-2km: 54.14%
- 2-5km: 59.93%
- 5-10km: 41.34%

Cycling has established itself as the simplest and quickest form of transport in many places in Oldenburg and has thus become the social norm.

Nevertheless, there are still many people living in Oldenburg or near the university who rely on their cars (see description in Profile 12). In addition to this, there is a larger group of university members who indeed live further away from their place of study or work but would be prepared to travel to and from university (mostly) by e-bike instead of driving.

E-bike leasing or financial subsidies for the university and for universities in Lower Saxony are prohibited under collective bargaining law.

The use of company bicycles is permitted in principle, but exclusively for official journeys, which does not include travelling to and from university.

Facility Management currently has a total of 15 company bicycles, which are available to staff in all departments. Maintenance supervisors, workers, gardeners and administrative staff use these bikes to reach the individual buildings on duty. There is also an electric cargo bike and an electric pedelec, which can be used to transport heavy items using a trailer.

Description

The measure is explained here. This may be up to a page long depending on the scope of the measure.

Includes the sub-measures:

- AM_03_01 Enhance & promote bicycle repair on campus
- AM_03_02 Introduce a bicycle rental system for students and staff
- AM_03_03 Place bicycles that can be hired at the Wechloy site
- AM_03_04 Cargo bikes in the university's vehicle fleet for transportation between sites
- AM_04_05 Expansion of covered, lockable parking spaces with charging facilities for e-bikes
- AM_04_06 Consider installing showers and changing rooms in new buildings
- AM_04_07 Create cycling routes and plans focused on the university
- AM_04_08 Examine the possibility of financial support for e-bikes, bicycles or pedelecs for staff

The sub-measures are intended to enhance the appeal of cycling as a primary means of transport in a variety of ways.

Initiator

The main stakeholder (initiator, sponsor, organisational unit) is named here.

Climate action management

Stakeholders

Other important stakeholders and partners are named here

Division 4, Division 2 (for cargo bikes in the vehicle fleet), Presidential Board, Student Council + Fahrradwerke (bicycle workshop)

Target group

Who should be prompted by the measure to do something?

The aim of this package of measures is to encourage significantly more university members to cycle to university more often or regularly.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

/

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

- Increased proportion of university members who state in the mobility survey that their primary means of transport to university is cycling

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

/

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

/

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

It is difficult especially in the area of mobility to calculate GHG reductions resulting from individual measures as it is hard to predict who will switch means of transport and from which means of transport to which other means of transport following implementation of the measure.

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

In one scenario, where 80% of university members who live within a 10 km radius of the university and travel in by car switch to cycling, there can be a reduction of around 930t CO_2e/a.

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

Enhance the appeal as an employer and place of study

Promoting a healthy lifestyle

This measure was mentioned most frequently during the participation process and would enhance the sense of empowerment of the people involved and the culture of participation within the university.

Accompanying measures

Important accompanying measures are listed with the numbers

It is crucial to implement several measures at the same time or together, especially in the area of mobility. Push and pull measures should be combined for this purpose.

- AM_02 Parking management
- AM_04 Promotion of public transport
- AM_06_04 Founding a mobility research group / mobility round table

Communication

How can the measure be communicated, what accompanying communication is there?

As this package of measures is not controversial, no specific communication is required. The start and successful completion of the sub-measures can be communicated as part of the general communication on the progress of the implementation of the climate action concept.

Information

This includes, for example

- *examples of projects implemented by other stakeholders / universities*
- *important recommendations*
- *obstacles & risks that must be taken into account*
- *social aspects (e.g. acceptance, participation)*
- *environmental aspects (e.g. nature conservation, consumption of resources)*
- *interactions with climate change adaptation*
- *Best Practice examples: has the measure already been implemented at other universities?*
- *Are there possible funding programmes that can be used to finance the measure?*
- *How was the measure developed? (workshop, email, etc.)*

The package of measures was developed as part of the workshops and is based on proposals submitted in the brainstorming event or via email. There is huge demand in particular for financial subsidies or funding of (e-)bikes by the university as an employer and this is by far the most frequently mentioned suggestion.

Profile 14 – Improving public transport

Sphere of activity	Measure number	Type of measure e.g. *promotion, connectivity, technical measure*	Introduction of the measure **S**hort-term *(< 1 year)* **M**edium-term *(1-3 years)* **L**ong-term *(> 3 years)*
Everyday mobility	AM_04	Connectivity	Permanent

Title of measure
Commitment to improve public transport to the university
Objective and strategy *The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed* In order to reduce emissions in the area of everyday mobility, it is important that many university members switch from driving to public transport to complete their journey to and from university. Since the university has no direct influence on this, the aim of this package of measures is for the university, as an important institution and big employer (and thus also a transport hub), to engage in a more meaningful way with the key stakeholders and advocate for the improvement of public transport to the university.
Starting point *The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)* Relates to the following sub-measures: - 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 The university is not actively involved in public transport arrangements. The following stakeholders are involved in influencing the state of local public transport (apart from the mobility policy of the federal government and the state in general): - Municipality of Oldenburg (Mobility Department, Office for Traffic and Road Construction) – local politics (mayor, city council groups, etc.) - Municipality of Wilhelmshaven - Deutsche Bahn (DB) - NordWestBahn (NWB) - Verkehr und Wasser GmbH (VWG) - Verkehrsbetriebe Oldenburg Land (VOL) - DB Regio Bus Nord → Wester-Ems-Bus - Stadtwerke-Verkehrsgesellschaft Wilhelmshaven (SWWV) These stakeholders all have different interests and operate under different conditions; their primary goal is not to provide optimum connections to the university from all directions of the city and the surrounding areas.
Description

The measure is explained here. This may be up to a page long depending on the scope of the measure. Given that this is a key sphere of activity despite the university's limited ability to exert any influence, the university should enter into more meaningful dialogue with the respective stakeholders and strive for more active collaboration. The university can assume its role as a large and important higher education institution in the region and, for example, invite people to participate in exchange meetings and network meetings and, if necessary, also strive to improve public transport through individual discussions. In principle, all university sites shall be taken into account here.
Initiator *The main stakeholder (initiator, sponsor, organisational unit) is named here.* Presidential Board
Stakeholders *Other important stakeholders and partners are named here* See description of the starting point
Target group *Who should be prompted by the measure to do something?* The stakeholders are to be encouraged to improve the state of public transport (apart from a generally desirable expansion of the service for all) specifically in relation to the accessibility of the university's sites.
Action steps & timetable *The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).* /
Success indicators / milestones *Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.* /
Total expenditure / (start-up) costs *The costs (material costs and personnel costs) for the (start-up) measure are listed here.* Apart from the human resources for the implementation of the measure, no other costs are expected to be incurred.
Funding approach *This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)* /
Energy savings and greenhouse gas reductions *What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)* As this is a qualitative measure, no specific GHG emissions can be determined. In addition, it is difficult to calculate GHG reductions resulting from individual measures especially in the area of mobility, as it is hard to predict who will switch means of transport and from which means of transport to which other means of transport following implementation of the measure. What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)
Added value & strategic benefits *Specify qualitatively the regional value-added potential here / benefits for the entire organisation* Improves the university's connections to the region.
Accompanying measures *Important accompanying measures are listed with the numbers* It is crucial to implement several measures at the same time or together, especially in the area of mobility. Push and pull measures should be combined for this purpose. - AM_02 Parking management - AM_03 Package of measures for bicycle infrastructure & promotion - AM_06 Permanent networking of stakeholders
Communication *How can the measure be communicated, what accompanying communication is there?* External communication and networking is at the heart of this measure. As this package of measures is not controversial within the university, no specific communication on it is required. Regular reports can be given on the general progress during the implementation of the measure.
Information *This includes, for example* - *examples of projects implemented by other stakeholders / universities* - *important recommendations* - *obstacles & risks that must be taken into account* - *social aspects (e.g. acceptance, participation)* - *environmental aspects (e.g. nature conservation, consumption of resources)* - *interactions with climate change adaptation* - *Best Practice examples: has the measure already been implemented at other universities?* - *Are there possible funding programmes that can be used to finance the measure?* - *How was the measure developed? (workshop, email, etc.)* This package of measures was developed as part of the workshops and brainstorming event.

5.2.4 International mobility

Profile 15 – Reduction in flying

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S**hort-term (< 1 year) **M**edium-term (1-3 years) **L**ong-term (> 3 years)
International mobility	IM_02_01	Guideline	Short-term

Title of measure
Reduction in flying, in particular short-haul flights

Objective and strategy

The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed

In the area of international mobility, flights taken by staff make up a large proportion of emissions. Particular importance should be given to reducing the number of short-haul flights or avoiding them altogether.

Starting point

The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)

Business trips involving flying for a distance of less than 1,000 km made up around a third of all flights in 2019. Short-haul flights taken due to layovers on long-haul flights are not included in the statistics, as this data cannot be taken from the business travel expense report. Short-haul flights therefore constitute a considerable overall percentage of flights.

The 5 most frequent destinations for these short-haul flights were London, Vienna, Paris, Oxford and Munich.

In 2019, Scientists for future and the former Vice President for International Affairs, Prof. Esther Ruigendijk launched an initiative to make a public commitment to avoid this kind of short-haul flight. Around 150 people signed this self-declaration. This self-declaration was revived in September 2022 in preparation for the measures from the climate action concept. After a follow-up invitation to the mailing list, the number of signatories includes over 350 members of the university, indicating strong support for the measure.

Description

The measure is explained here. This may be up to a page long depending on the scope of the measure.

Taking a short-haul flight for the outward and return leg of a business trip cannot and should not be prohibited. Instead, claims for travel expenses that indicate that a short-haul flight was taken shall no longer be processed and will not be reimbursed, wherever possible. This only applies to the costs of taking a flight, not to the other expenses incurred during the business trip (e.g. conference contributions, hotel accommodation, etc.).

In terms of long-haul flights, there should be more coordinated collaboration with the travel agency 'Horizont' so that train-plane combinations are considered more often.

When designing the measure, it should be taken into account that some destinations that are less than 1,000 kilometres away are exceptionally difficult to reach by train, e.g. by taking into account certain time restrictions.

Initiator

The main stakeholder (initiator, sponsor, organisational unit) is named here.

Presidential Board

Stakeholders

Other important stakeholders and partners are named here

Division 2

Target group

Who should be prompted by the measure to do something?

This measure should encourage university staff to use sustainable forms of transport instead of flying for business trips when travelling less than 1,000 km away.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

/

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

Decrease in emissions in the area of business trips in tCO2e/a

Decrease in the number of short-haul flights taken for business trips in absolute terms

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

This measure does not cost anything.

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

/

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

The University of Oldenburg is involved in the *flying less* project and can excel here with the implementation of strong measures. In general, the University of Oldenburg takes the lead with this measure.

Accompanying measures

Important accompanying measures are listed with the numbers

IM_01_03 Holding a series of events to address and discuss the trade-off between internationalisation & climate action

Communication

How can the measure be communicated, what accompanying communication is there?

Good communication is required when starting to implement the measure. However, the high level of participation in the self-declaration indicates great support for this measure in the university.

Information

This includes, for example

- *examples of projects implemented by other stakeholders / universities*
- *important recommendations*
- *obstacles & risks that must be taken into account*
- *social aspects (e.g. acceptance, participation)*
- *environmental aspects (e.g. nature conservation, consumption of resources)*
- *interactions with climate change adaptation*
- *Best Practice examples: has the measure already been implemented at other universities?*
- *Are there possible funding programmes that can be used to finance the measure?*
- *How was the measure developed? (workshop, email, etc.)*

Similar measures are currently being discussed and initiated at many universities in Lower Saxony. The university can position itself as a pioneer if implementation is quick.

Profile 16 – Internal compensation mechanism for flights

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S**hort-term (< 1 year) **M**edium-term (1-3 years) **L**ong-term (> 3 years)
International mobility	IM_02_02	Control	Short to medium-term

Title of measure Introduction of an internal compensation mechanism for flying
Objective and strategy *The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed* The externalised costs that are apparent due to the severe climate damage caused by flying are to be included in the price evaluation through an internal compensation mechanism. As many project promoters do not currently finance compensation payments, this can instead be done through an internal tax paid into the climate action fund. Even though this cannot truly offset the negative effects of flying, the financial resources can at least be used to implement other reduction measures.
Starting point *The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)* To date, compensation payments cannot be paid via the state. Most third-party donors do not make compensation payments either. In addition, many compensation projects set up in the private sector are viewed critically for many reasons.
Description *The measure is explained here. This may be up to a page long depending on the scope of the measure.* An internal carbon tax on flights can create both a control instrument and a compensation mechanism. As a result of the tax, the price of the plane ticket would be significantly closer to the true price including the externalised effects. This makes flying overall more unappealing, which in turn reduces the overall need to fly. In addition, a type of internal compensation mechanism can be applied for flights that are still taken if the additional amounts from the tax in turn go directly towards funding climate action measures at the university.
Initiator *The main stakeholder (initiator, sponsor, organisational unit) is named here.* Presidential Board
Stakeholders *Other important stakeholders and partners are named here* Division 2
Target group *Who should be prompted by the measure to do something?*

On the one hand, the significantly higher cost of air travel is intended to illustrate how high the true costs are for using this means of transport. In the best-case scenario, employees will decide not to travel at all for the business trip if possible and replace it, for example, with an online format, meaning that the flight is avoided altogether. Otherwise, the revenue raised by the tax will go directly into the climate action fund and will be channelled into effective measures.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

/

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

/

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

Apart from the human resources needed to introduce it, this measure has no further costs.

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

/

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

This is a regulatory and qualitative measure that does not directly reduce emissions.

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

The University of Oldenburg is involved in the 'flying less' project and can make a positive impact with the implementation of strong measures.

Accompanying measures

Important accompanying measures are listed with the numbers

GO_05 Introduction of a climate action fund

IM_01_03 Holding a series of events to address and discuss the trade-off between internationalisation & climate action

Communication

How can the measure be communicated, what accompanying communication is there?

Good communication is required in particular when starting to implement the measure. Once the tax has been set up and established, the measures that can be implemented with the revenue generated can be specifically outlined.

Information

This includes, for example

- *examples of projects implemented by other stakeholders / universities*

- *important recommendations*
- *obstacles & risks that must be taken into account*
- *social aspects (e.g. acceptance, participation)*
- *environmental aspects (e.g. nature conservation, consumption of resources)*
- *interactions with climate change adaptation*
- *Best Practice examples: has the measure already been implemented at other universities?*
- *Are there possible funding programmes that can be used to finance the measure?*
- *How was the measure developed? (workshop, email, etc.)*

This measure was developed as part of the workshops and also submitted in email proposals and mentioned during the brainstorming event.

Profile 17 – Focus of advice on Europe

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S**hort-term *(< 1 year)* **M**edium-term *(1-3 years)* **L**ong-term *(> 3 years)*
International mobility	IM_03_01 IM_03_02	Counselling	Permanent

Title of measure

Increase focus of advice on Europe in terms of student mobility

Objective and strategy

The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed

In terms of students travelling abroad, students should be increasingly encouraged to choose destinations in Europe or closer regions in order to highlight the appeal of European destinations. As a result, more students should be encouraged to spend their time abroad in nearby regions that are also easy to reach by other means of transport rather than flying. This measure is combined with better communication and the expansion of the International Office subsidy for the choice of sustainable transport, which is also funded by the European Commission through the Erasmus programme. Since these means of transport are currently still much more expensive and take more time, the IO subsidy is intended to offset this.

Starting point

The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)

The International Office at the University of Oldenburg already provides grants through the Erasmus programme to offset the higher costs incurred by choosing a more sustainable means of transport to make the return journey for your semester abroad. Although some students have already benefited from this grant, it is still somewhat unknown amongst the student body.

There is also already a focus on advising students to travel within Europe, but this should be expanded if necessary to strengthen its impact from a climate action perspective.

Description

The measure is explained here. This may be up to a page long depending on the scope of the measure.

In principle, it should continue to be possible to travel both within and outside of Europe for semesters abroad. However, students could initially be steered towards European destinations and made aware of funding options in Europe in the initial consultations, including the possibility of using more sustainable means of transport. In future, part of the initial consultation can be to draw attention to sustainable travel and our funding opportunities in each case.

Initiator

The main stakeholder (initiator, sponsor, organisational unit) is named here.

International Office

Stakeholders

Other important stakeholders and partners are named here

Student representatives, Student Council

Target group

Who should be prompted by the measure to do something?

Students are to be encouraged to consider sustainable travel and alternative nearby destinations.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

The *Mobility and Cooperation* sub-team in the International Office is to jointly reflect on how this can be further implemented. A concept for implementation in advisory services is being developed and implemented in the International Office.

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

- Reduction in emissions in the area of student mobility with the same number of trips in t CO2e/a
- Increased popularity of European and nearby destinations in terms of student numbers
- Increased up-take of funding for sustainable transport in €

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

The measure is initially cost-neutral (unclear in the long run).

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

Funding green travel in the Erasmus programme

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

Added value & strategic benefits *Specify qualitatively the regional value-added potential here / benefits for the entire organisation* Strengthening European partnerships Let the journey to and from the destination become part of the 'adventure' for students; for example, you can gaze at the changing landscape on train journeys.
Accompanying measures *Important accompanying measures are listed with the numbers* IM_01_03 Holding a series of events to address and discuss the trade-off between internationalisation & climate action
Communication *How can the measure be communicated, what accompanying communication is there?* As these are fundamentally highly communication-based measures, continuous and varied presentation of the possible travel destinations, partner universities, sustainable transport and funding options is a vital component in the implementation of these measures. Students are kept informed via social media, mailing lists, websites, Stud.IP and articles in Uni-Info.
Information *This includes, for example* - *examples of projects implemented by other stakeholders / universities* - *important recommendations* - *obstacles & risks that must be taken into account* - *social aspects (e.g. acceptance, participation)* - *environmental aspects (e.g. nature conservation, consumption of resources)* - *interactions with climate change adaptation* - *Best Practice examples: has the measure already been implemented at other universities?* - *Are there possible funding programmes that can be used to finance the measure?* - *How was the measure developed? (workshop, email, etc.)* This measure was developed during the workshops.

5.2.5 Resources

Profile 18 – Increase the life cycle of products & materials

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** ***S**hort-term (< 1 year)* ***M**edium-term (1-3 years)* ***L**ong-term (> 3 years)*
Resources	RE_01	Support	Medium-term

Title of measure Increase the useful life & lifetime of products & materials
Objective and strategy *The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed* Increasing the lifetime and useful life of products and materials is intended to reduce emissions for which the university would be responsible as a result of the new purchases. At the same time, this will trigger a change in awareness about the use of resources.
Starting point

The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)

So far, the proposed structures are only rudimentary in the university.

Division 4 maintains a furniture storage facility from where university staff can take furniture for their office.

Many discarded devices are no longer used even though they are still in working order, particularly due to the high turnover of staff in academia.

Division 2 maintains an internal equipment exchange platform on the intranet, but it is not very well known and can only display larger items of equipment. Small equipment such as keyboards and computer mice cannot be placed here.

Description

The measure is explained here. This may be up to a page long depending on the scope of the measure.

Includes the sub-measures:

- RE_01_01 Setting up an internal recycling centre
- RE_01_02 Promoting the shared use of products
- RE_01_03 Establishing and enhancing repair options

The aim of the sub-measures as a whole is to avoid purchasing new products. Thanks to the internal recycling centre, products and materials that are no longer used in one area of the university do not have to be disposed of, but rather can be used in another area, thus avoiding new purchases.

The promotion of shared use aims to expand sharing structures within the university. Many items that are only rarely used can be jointly used or borrowed by research groups or departments. Nevertheless, many teams purchase these items again. These include flip charts, presentation cases, microphones and photo cameras. Promoting sharing structures, for example through a platform, can also reduce the number of avoidable new purchases.

Establishing and enhancing repair options is intended to prevent equipment and materials from being discarded before they need to be.

Initiator

The main stakeholder (initiator, sponsor, organisational unit) is named here.

Climate action management

Stakeholders

Other important stakeholders and partners are named here

Division 2, Division 4, local cooperation partners such as the repair cafe, if applicable

Target group

Who should be prompted by the measure to do something?

The measure is aimed primarily at university staff. They are to be encouraged to question and reduce the number of new purchases. They should also get the opportunity to access second-hand equipment that is still usable.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

/

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

- Reduction in number of new purchases per university member per year
- Reduction in emissions in the area of procurement in t CO_2e/a

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

/

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

Funding possible via Local Authorities Guideline through funding priority 4.1.8 c) (funding rate 50%, max. €200,000)

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

A 50% reduction in laptop, monitor and computer purchases per year can result in a reduction of 105 tCO2e/a. (Source: Potential analysis).

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

Once the structures described have been set up, the costs of new purchases can be saved thanks to the increased lifetime of products at the university. In addition, a culture of sharing within the university can have a positive impact on the organisational culture and strengthen cooperation in the organisation.

Accompanying measures

Important accompanying measures are listed with the numbers

RE_02 Revising the purchasing policy in terms of sustainability and climate action criteria
RE_03 Revising & introducing central standards
RE_04 Examination of further options for giving away items, e.g. through auctions etc.

Communication

How can the measure be communicated, what accompanying communication is there?

The implementation of the various measures should not only be accompanied by communication in order to present the university's climate action activities in general. As these measures strive to bring about a cultural shift and are particularly effective when they are sufficiently well-known and established, communication and advertisement of the measures should be considered an active component of and prerequisite for the implementation of the measures.

Information

This includes, for example

- *examples of projects implemented by other stakeholders / universities*
- *important recommendations*
- *obstacles & risks that must be taken into account*
- *social aspects (e.g. acceptance, participation)*
- *environmental aspects (e.g. nature conservation, consumption of resources)*
- *interactions with climate change adaptation*
- *Best Practice examples: has the measure already been implemented at other universities?*

- *Are there possible funding programmes that can be used to finance the measure?*
- *How was the measure developed? (workshop, email, etc.)*

Purchasing items, in particular IT equipment, affects many other aspects of sustainability beyond greenhouse gas emissions. These include, for example, respecting human rights within the entire supply chain, the use of rare earths and resources, water consumption associated with the product, etc.
Even beyond a consideration of the emissions, these factors play an important role in respecting planetary boundaries and the university's social and ethical commitments.

This measure was predominantly developed during the workshops.

Profile 19 – Central standards & purchasing policy

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S**hort-term (< 1 year) **M**edium-term (1-3 years) **L**ong-term (> 3 years)
Resources	RE_02 RE_03	Policy	Short-term

Title of measure
Introduction of central standards & revising the purchasing policy in terms of sustainability and climate action criteria

Objective and strategy
The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed
This measure provides qualitative support for the reduction of emissions in the area of procurement through the introduction of climate action criteria in the procurement policy. This should facilitate or ensure that the more environmentally friendly option is preferred in the selection process for purchasing products or materials.

Starting point
The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)
The university complies with the regulations stipulated by the state of Lower Saxony on procurement. In 2020, an overview paper was published on the topic of sustainable procurement by the Lower Saxony Ministry of Economic Affairs, Labour, Transport and Digitalisation, describing the design of sustainable procurement. It offers scope for (more) sustainable procurement but does not provide a legal obligation to choose the more environmentally friendly option.

Description
The measure is explained here. This may be up to a page long depending on the scope of the measure.
By revising the central purchasing policy and setting central standards within the university, the university defines how it implements the required legal framework to ensure that procurement is as sustainable and environmentally friendly as possible.

The 'Sustainable Procurement Competence Centre' set up by the federal government can provide support in this process.
Initiator *The main stakeholder (initiator, sponsor, organisational unit) is named here.* Division 2
Stakeholders *Other important stakeholders and partners are named here* Presidential Board, state of Lower Saxony, Sustainable Procurement Competence Centre
Target group *Who should be prompted by the measure to do something?* Revising the internal regulations and requirements should ensure that individuals within the university no longer have to actively choose the most sustainable and environmentally friendly options. Instead, a certain sustainability standard should already automatically apply to procurement through certain internal specifications.
Action steps & timetable *The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).* /
Success indicators / milestones *Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.* /
Total expenditure / (start-up) costs *The costs (material costs and personnel costs) for the (start-up) measure are listed here.* Apart from the resources of the stakeholders involved, this measure is not expected to incur any further costs.
Funding approach *This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)* -
Energy savings and greenhouse gas reductions *What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)* What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative) What **GHG reductions (t/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative) As this is a qualitative measure, no quantitative GHG reductions can be calculated.
Added value & strategic benefits *Specify qualitatively the regional value-added potential here / benefits for the entire organisation* /
Accompanying measures *Important accompanying measures are listed with the numbers* RE_01 Increase the useful life & lifetime of products & materials
Communication *How can the measure be communicated, what accompanying communication is there?*

As this measure is not particularly controversial, no specific communication is required. The start and successful completion of the measure can be communicated as part of the general communication on the progress of the implementation of the climate action concept.
Information *This includes, for example* - *examples of projects implemented by other stakeholders / universities* - *important recommendations* - *obstacles & risks that must be taken into account* - *social aspects (e.g. acceptance, participation)* - *environmental aspects (e.g. nature conservation, consumption of resources)* - *interactions with climate change adaptation* - *Best Practice examples: has the measure already been implemented at other universities?* - *Are there possible funding programmes that can be used to finance the measure?* - *How was the measure developed? (workshop, email, etc.)* Purchasing items, in particular IT equipment, affects many other aspects of sustainability beyond greenhouse gas emissions. These include, for example, respecting human rights within the entire supply chain, the use of rare earths and resources, the water consumption associated with the product, etc. Even beyond a consideration of the emissions, these factors play an important role in respecting planetary boundaries and the university's social and ethical commitments. This measure was predominantly developed during the workshops.

5.2.6 Research, studying & teaching

Profile 20 – Categorisation of research & teaching by SDGs

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S***hort-term (< 1 year)* **M***edium-term (1-3 years)* **L***ong-term (> 3 years)*
Research, studying & teaching	FS_01	Cost Accounting	Short-term

Title of measure Categorisation of research projects & courses by SDGs
Objective and strategy *The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed* In order to further expand reporting on the university's sustainability activities and thus also ensure the possibility of better control, all courses and research projects are to be categorised by SDGs. This can provide a general overview of the University of Oldenburg's contributions towards meeting the 2030 Agenda and in particular SDG 13, 'Measures on climate action'.
Starting point *The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)*

The University of Oldenburg has produced and published a sustainability report every three years since 2013. This also endeavours to present the activities in the area of research, studying and teaching. Due to the breadth of and difficulty in defining the conventional concept of sustainability, it is often difficult to classify it in retrospect.
Description *The measure is explained here. This may be up to a page long depending on the scope of the measure.* Assignment to the 17 SDGs provides a clear framework and can adequately represent the range of research and teaching projects. This allows a binary classification (sustainability: yes or no) to be replaced by a broader, more diverse approach. This also goes hand in hand with educating researchers and lecturers on the goals of the 2030 Agenda. Courses could, for example, be easily classified in advance via registration of the course and entry in Stud.IP, thus also simplifying reporting in the next step. Research projects can also check their relation to the SDGs at the beginning and state it on the project page. The measure can also be extended as desired to other activities of the university, for example in relation to events, technology transfer and running of the university.
Initiator *The main stakeholder (initiator, sponsor, organisational unit) is named here.* Presidential Board
Stakeholders *Other important stakeholders and partners are named here* Schools, possibly IT services, Department of Studies and Teaching, Department for Research and Technology Transfer
Target group *Who should be prompted by the measure to do something?* Lecturers are to be encouraged to consider how their course relates to the 17 SDGs and to indicate this when registering the course. The same applies to research projects at the University of Oldenburg.
Action steps & timetable *The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).* /
Success indicators / milestones *Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.* /
Total expenditure / (start-up) costs *The costs (material costs and personnel costs) for the (start-up) measure are listed here.* Apart from the human resources for the implementation of the measures, no additional costs are incurred.
Funding approach *This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)* /
Energy savings and greenhouse gas reductions *What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)*

As this is a qualitative measure, no direct GHG reductions can be calculated. What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative) What **GHG reductions (t/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)
Added value & strategic benefits *Specify qualitatively the regional value-added potential here / benefits for the entire organisation* The 2030 agenda can, in principle, be a good tool to present the University of Oldenburg's research and teaching activities in a certain framework.
Accompanying measures *Important accompanying measures are listed with the numbers* /
Communication *How can the measure be communicated, what accompanying communication is there?* In this case, communication is not so much a form of support as one of the measure's core objectives, as the context of the 17 SDGs also provides a good framework for communicating the university's sustainability activities.
Information *This includes, for example* - *examples of projects implemented by other stakeholders / universities* - *important recommendations* - *obstacles & risks that must be taken into account* - *social aspects (e.g. acceptance, participation)* - *environmental aspects (e.g. nature conservation, consumption of resources)* - *interactions with climate change adaptation* - *Best Practice examples: has the measure already been implemented at other universities?* - *Are there possible funding programmes that can be used to finance the measure?* - *How was the measure developed? (workshop, email, etc.)* This measure was developed during the workshops.

Profile 21 – Subject pool for theses

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** ***S**hort-term (< 1 year)* ***M**edium-term (1-3 years)* ***L**ong-term (> 3 years)*
Research, studying & teaching	FS_03_01	Connectivity	Short-term

Title of measure Introduction & maintenance of a subject pool for theses with issues from the climate action project
Objective and strategy

The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed

Students become actively involved in achieving the climate action goals through this measure. The work carried out on issues from the climate action project can also increase the resources of the climate management team if students work on certain issues as part of their thesis. In addition, this enhances the sense of togetherness in achieving the climate action goals as well as giving students the opportunity to add a directly practical dimension to their thesis.

Starting point

The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)

In some cases, questions and issues from the climate action project have already been advertised as theses, for which students could then apply. At the same time, during the initial project students were able to actively inquire about a topic related to the project.

However, it was primarily students from the SEM Master's degree who were involved. Theses focusing on practical questions related to the university have occasionally been offered before in other research groups too.

There is currently no interdisciplinary subject pool where problems from the various topic areas are regularly advertised.

Description

The measure is explained here. This may be up to a page long depending on the scope of the measure.

A subject pool of this type should be set up to implement the measure, for example on the website. A key factor here is publicity among students and consultation with the schools and potential supervisors from the various departments. The subject pool should provide offers to students from various disciplines as well as for Bachelor's and Master's theses.

Initiator

The main stakeholder (initiator, sponsor, organisational unit) is named here.

Climate action management

Stakeholders

Other important stakeholders and partners are named here

Schools, departments, research groups, degree programme coordinators, Student Council, student representatives, Presidential Board

Target group

Who should be prompted by the measure to do something?

Students should be motivated to devote their thesis to a practical problem from the climate action concept. Lecturers and supervisors should be motivated to offer or supervise theses on the university's climate action project.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

/

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

/

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

Apart from the personnel resources required for implementation, there are no further costs for this measure. (There may be material costs for advertising the offer)

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

/

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

As this is a qualitative measure, no direct GHG reductions can be determined.

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

Students can address very practical issues as part of their thesis.

Accompanying measures

Important accompanying measures are listed with the numbers

FS_03_02 Communicating problems from climate action projects to departments for possible handling as research projects.

Communication

How can the measure be communicated, what accompanying communication is there?

In order for the measure to be a success, the offer of the subject pool must be known to the students in principle or must be repeatedly publicised. The offer must therefore be repeatedly made to the students through various channels. The same applies to potential supervisors.

Information

This includes, for example

- *examples of projects implemented by other stakeholders / universities*
- *important recommendations*
- *obstacles & risks that must be taken into account*
- *social aspects (e.g. acceptance, participation)*
- *environmental aspects (e.g. nature conservation, consumption of resources)*
- *interactions with climate change adaptation*
- *Best Practice examples: has the measure already been implemented at other universities?*
- *Are there possible funding programmes that can be used to finance the measure?*
- *How was the measure developed? (workshop, email, etc.)*

This measure was developed as part of the workshops and was also discussed in the brainstorming event.

Profile 22 – Inclusion of research in implementation of measures

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S***hort-term (< 1 year)* **M***edium-term (1-3 years)* **L***ong-term (> 3 years)*
Research, studying & teaching	FS_03-02 and FS_03_03	Strategic	Medium to long-term

Title of measure Inclusion of research projects for developing and implementing measures
Objective and strategy *The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed* The measure is intended to exploit the already existing potential in the university for the implementation of the climate action project, in particular thanks to the university's academic orientation. Furthermore, additional funds can be used for the implementation of the climate action measures through research projects funded by third parties.
Starting point *The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)* There is great potential for monitoring the implementation of measures especially in the area of energy. Until now, this approach has not been used with the exception of the 'WärmeWende NordWest' project, where the University of Oldenburg is involved in a work package.
Description *The measure is explained here. This may be up to a page long depending on the scope of the measure.* Relates to the following sub-measures: - 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 The communication axis to achieve the support of the research sector for the climate action project is to be expanded with this measure. It should then be jointly examined in collaboration with the stakeholders involved what measures would be suitable for implementation with the support of research in order to then develop the subsequent approach.
Initiator *The main stakeholder (initiator, sponsor, organisational unit) is named here.* Climate action management
Stakeholders *Other important stakeholders and partners are named here* Schools, research centres, research groups, Division 4, climate action management
Target group *Who should be prompted by the measure to do something?*

Overall, direct communication and collaboration between the research sector and the parties implementing the climate action concept the climate action concept should be strengthened and used.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

/

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

/

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

Apart from the human resources required to implement this measure, no additional costs are incurred.

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

/

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

As this is a qualitative measure, no direct GHG reductions can be determined.

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

Strengthening the internal networks on the issue of climate action and sustainability. Reinforcing a culture of cooperation as equals within the university. Reinforcing the message of climate action as a joint task.

Accompanying measures

Important accompanying measures are listed with the numbers

/

Communication

How can the measure be communicated, what accompanying communication is there?

In essence, this is a measure that aims for communication between various stakeholders.

Information

This includes, for example

- *examples of projects implemented by other stakeholders / universities*
- *important recommendations*
- *obstacles & risks that must be taken into account*
- *social aspects (e.g. acceptance, participation)*
- *environmental aspects (e.g. nature conservation, consumption of resources)*
- *interactions with climate change adaptation*

- *Best Practice examples: has the measure already been implemented at other universities?*
- *Are there possible funding programmes that can be used to finance the measure?*
- *How was the measure developed? (workshop, email, etc.)*

This measure was developed during the workshops.

5.2.7 Governance

Profile 23 – Internal carbon price

Sphere of activity	**Measure number**	**Type of measure** *e.g. promotion, connectivity, technical measure*	**Introduction of the measure** **S**hort-term (< 1 year) **M**edium-term (1-3 years) **L**ong-term (> 3 years)
Governance	GO_03_03	Control instrument	Medium-term

Title of measure

Examining the possibility of implementing an internal carbon price as an assessment tool

Objective and strategy

The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed

Although the introduction of an internal carbon price has no direct impact on the reduction of emissions, it would be a comprehensive control instrument within the university structure. Considering a (realistic) carbon price for climate-relevant decisions could create a far-reaching instrument to internalise the costs arising from environmental damage and to base decisions on a 'true' price, especially as the carbon price could have an effect in several areas at the same time.

Starting point

The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)

Although sustainability criteria have mostly been taken into account in most climate-related decisions up to now, they have not been adequately considered in the economic analysis.
An assessment of decisions with the help of a carbon price has not yet been established in state law. Since 2021, it has been a legal requirement for the federal administration to include the current carbon price specified in the Climate Change Act in the area of procurement.

Description

The measure is explained here. This may be up to a page long depending on the scope of the measure.

The introduction and use of an internal carbon price has not been common in the governance of organisations up to now and there are hardly any known organisations or institutions that have established such an instrument internally. Therefore, in order to enhance the university's exemplary role, an examination of such a control instrument is very helpful for the establishment of climate action in the organisation as a whole.
This examination could be part of one or several theses and thus also involve students.

The thesis/theses shall ascertain the extent to which a carbon price would be a useful control instrument for the university, how it should be designed and how it could be implemented.

Initiator

The main stakeholder (initiator, sponsor, organisational unit) is named here.

Presidential Board

Stakeholders

Other important stakeholders and partners are named here

Division 2, School II

Target group

Who should be prompted by the measure to do something?

This measure does not strive to change the behaviour of a particular target group.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

- Agreeing the objectives of and requirements for the examination
- Advertising the thesis/theses
- Preparing the thesis
- Writing phase of the thesis
- Submitting the thesis
- If necessary, repeating the process with other theses
- Subsequently working out further steps based on the results

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

/

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

Apart from the human resources required for implementation, the measure incurs no costs.

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

/

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

Qualitative measure, therefore, GHG reductions cannot be determined

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

Powerful reinforcement of the university's pioneering role as this is a model project, in particular for universities.

Accompanying measures *Important accompanying measures are listed with the numbers* /
Communication *How can the measure be communicated, what accompanying communication is there?* As this measure is not controversial, no specific communication is required. The start and successful completion of the measure can be communicated as part of the general communication on the progress of the implementation of the climate action concept.
Information *This includes, for example* - *examples of projects implemented by other stakeholders / universities* - *important recommendations* - *obstacles & risks that must be taken into account* - *social aspects (e.g. acceptance, participation)* - *environmental aspects (e.g. nature conservation, consumption of resources)* - *interactions with climate change adaptation* - *Best Practice examples: has the measure already been implemented at other universities?* - *Are there possible funding programmes that can be used to finance the measure?* - *How was the measure developed? (workshop, email, etc.)* This measure was developed during the workshops.

Profile 24 - Climate action fund

Sphere of activity	Measure number	Type of measure *e.g. promotion, connectivity, technical measure*	Introduction of the measure ***S**hort-term (< 1 year)* ***M**edium-term (1-3 years)* ***L**ong-term (> 3 years)*
Governance	GO_05	Control instrument	Medium-term

Title of measure Introduction of a climate action fund to finance sustainability and climate action projects
Objective and strategy *The objective of the measure is described here, and it is explained how the measure supports the climate action scenarios that have been developed* An internal climate action fund can be set up for further financing of climate action and sustainability projects. These measures have an indirect effect on the reduction of emissions as they enable other measures to be implemented.
Starting point *The starting conditions in this sphere of activity are presented here (possibly also based on a SWOT analysis)* Up to now, climate action measures have had to be funded either from the current budget or from additionally acquired funding. Since the funding of measures and staff shortages constitute one of the biggest obstacles to achieving carbon neutrality, this is a useful way of funding further measures.
Description *The measure is explained here. This may be up to a page long depending on the scope of the measure.*

The internal fund may contain revenue from:

- surpluses from parking management
- energy cost budgeting
- monetary incentive model
- internal tax on flying
- tree sponsoring programme
- donations

Initiator

The main stakeholder (initiator, sponsor, organisational unit) is named here.

Presidential Board

Stakeholders

Other important stakeholders and partners are named here

Division 2

Target group

Who should be prompted by the measure to do something?

This measure does not strive to change the behaviour of a particular target group.

Action steps & timetable

The action steps are presented here in chronological order. Depending on the measure, it may be a good idea to present decision-making processes and timeframes necessary for them (e.g. University Senate's decision).

/

Success indicators / milestones

Specifying the most important milestones during the implementation phase against which the measure's success and progress can be measured.

- Number X of projects financed by the fund
- Annual size of the fund of X€

Total expenditure / (start-up) costs

The costs (material costs and personnel costs) for the (start-up) measure are listed here.

Apart from the human resources required to set up and manage the fund, no further costs are incurred.

Funding approach

This describes how the costs of the measures are to be funded (specifying third-party involvement, e.g. budgetary funds, financial support, sponsoring, etc.)

/

Energy savings and greenhouse gas reductions

What type of energy savings and greenhouse gas reductions are targeted by the measure (if possible, specifying quantity of the savings potential)

What **final energy savings (MWh/a)** are expected as a result of implementing the measure? (If possible quantitative, otherwise semi-quantitative)

What **GHG reductions (t/a)** are expected as a result of implementing the measure?
(If possible quantitative, otherwise semi-quantitative)

Indirect action, cannot be determined

Added value & strategic benefits

Specify qualitatively the regional value-added potential here / benefits for the entire organisation

Promotes acceptance for the measures from which the money goes into the fund.

Accompanying measures

Important accompanying measures are listed with the numbers

AM_02 Parking management
EB_12 Energy cost budgeting
EB_15 Monetary incentive model
IM_02_02 Introduction of an internal tax on flying
ÖC_01 Tree sponsoring programme

Communication

How can the measure be communicated, what accompanying communication is there?

As this measure is not controversial, no specific communication is required. The start and successful completion of the measure can be communicated as part of the general communication on the progress of the implementation of the climate action concept.

Information

This includes, for example

- *examples of projects implemented by other stakeholders / universities*
- *important recommendations*
- *obstacles & risks that must be taken into account*
- *social aspects (e.g. acceptance, participation)*
- *environmental aspects (e.g. nature conservation, consumption of resources)*
- *interactions with climate change adaptation*
- *Best Practice examples: has the measure already been implemented at other universities?*
- *Are there possible funding programmes that can be used to finance the measure?*
- *How was the measure developed? (workshop, email, etc.)*

Best practice example: Uni Osnabrück

This measure was developed during the workshops.

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 Identification of relevant stakeholders

It should first of all be noted that the increasing intensity of the debate on the issue of climate action has an effect on all of the university's relationships with stakeholders. At the start of the project, the most relevant stakeholders were nevertheless identified. The following list of internal and external stakeholders initially constitutes the major contributors to the development of the concept. However, the list is far from exhaustive as the number of contributors from a wide variety of areas in the university is much higher.

Internally

- *Climate-neutral university* research group
- University of Oldenburg Presidential Board

- University Senate
- University administration & units
    - Division 4
    - Division 2
    - International Office (Division 3)
    - Press & Communication unit
- Academic sector of the university
    - Research Centre for Environment and Sustainability COAST
    - Schools
- University students
    - AStA (Student Council)
    - Students for future
    - Student representatives
- General university community
- Staff Council
- ...

Externally

- Studierendenwerk Oldenburg, especially university catering
- City of Oldenburg, especially Climate Action & Mobility department
- Sustainability coordinators, climate action managers etc. at other universities, focused on Lower Saxony, specifically the HochNiNa network
- Furthermore, universities in collaborative projects on the subject of sustainability & climate action at universities and higher education institutions, e.g. TU Dresden, Uni Mannheim
- Service providers commissioned as part of the project to support the project, specifically TARA Ingenieursbüro GmbH
- Lower Saxony Ministry of Science & Culture
- Lower Saxony Ministry for the Environment, Energy, Construction and Climate Protection
- Furthermore, the region of Oldenburg & surrounding area
- ...

6.1.3 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.

6.1.3.1 Internal stakeholder participation

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 (Kommunalrichtlinie), 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)

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

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.

Presidential Board & University Senate

The Presidential Board was continuously involved in the development of the concept via the participation of the Vice President for Administration and Finance in the *Climate-neutral*

university research group. Moreover, the Presidential Board and the University Senate were informed of the intermediate results of the project through interim reports in University Senate meetings (presentation of the project, presentation of the greenhouse gas emissions, presentation of the results of the workshops). Through the interim reports in the University Senate, it was always possible to reflect the mood of this body in the project work through the subsequent discussions. Furthermore, representatives from the Presidential Board attended most of the subject-specific action workshops.

University administration & units

Many of the measures contained in the concept are to be put into practice or monitored by the university administration and its key units. In addition, the respective departments have the specialist knowledge and practical experience needed to design, introduce and implement the measures practically and in a goal-oriented manner. Close collaboration with colleagues from the respective departments is therefore vital for a meaningful design of the concept.

Division 4

As a result of the division of responsibilities, Division 4 (Facility Management) plays a decisive role in the development and implementation of the measures. Division 4 is particularly involved in the spheres of activity of 'Energy & Construction', 'Everyday mobility' and 'Campus ecology'. Division 4 provided large amounts of relevant data for calculating greenhouse gas emissions and preparing the potential analysis and scenario development.

The head of Division 4 was a member of the *Climate-neutral university* research group throughout the entire process. Division 4 representatives were involved in the abovementioned spheres of activity during the action workshops. Moreover, Division 4 remained in close contact with the climate action manager throughout the duration of the concept development, which also meant the first implementation of measures and integration of the climate action manager in current developments and decision-making processes.

Division 2

Division 2 is particularly involved in the sphere of activity of 'Resources' and processing business travel expense claims and thus the sphere of activity of 'International mobility'. The corresponding data was thus provided to calculate the greenhouse gas emissions. Division 2 also attended the workshop on 'Resources'. At the same time, a process was put in place to improve the data basis in the area of 'International mobility'. Division 2 is a regular contributor in this area.

International Office

The International Office was involved both in the workshop on 'International mobility' and in the process to improve the data basis in this sphere of activity.

Press & Communication unit

The Press & Communication unit regularly played a supporting role in the process of concept development. At the start of the project, a press release and article on the topic was published in the internal magazine *UNI-INFO*. This was also accompanied by social media involvement. The publication of greenhouse gas emissions was also featured in *UNI-INFO* and on social media. Both the advertisement for a film event for students and the invitation to attend action workshops were shared by the department via social media.

Other

In general, colleagues from a wide range of areas of work in the university have provided comprehensive support for the development of the concept even if not all activities can be mentioned here.

Academic sector of the university

COAST - Research Centre for Environment and Sustainability

The position of climate action manager was based at the Research Centre for Environment and Sustainability, which meant that there was close contact with the centre and with the university's research in general. This reinforced the university-wide nature of the project because it ensured the inclusion of the 'core activities' of research and teaching.

Schools

School heads were also regularly kept abreast of the project's progress via the University Senate reports. Moreover, heads of the schools, departments and research groups were explicitly invited to both university-wide events *Climate kick-starter* and *Environmental stocktaking* by email. Members of the *Climate-neutral university* research group included two professors and two research staff from various departments (School II, School III, School V).

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.

Staff Council

The project was presented and outlined to the Staff Council right at the beginning. The draft of the mobility survey to ascertain GHG emissions and the mobility habits of university members was also coordinated with the Staff Council.

General university community

In general, the university community had the opportunity to keep abreast of the project, ask questions and actively participate through a wide variety of channels. Various formats and channels were used to offer different starting points. The specific offers and channels of communication are explained in more detail in Chapter 1.3.2.

6.1.3.2 External stakeholder participation

Studierendenwerk Oldenburg

The Studierendenwerk Oldenburg (SWO) is the key stakeholder for the sphere of activity of 'university catering' in particular, as the university only has a very limited sphere of influence here through representation in various committees. Contact was established between the head of university catering and the university's climate management team at the start of the project. The SWO also provided data to calculate the university's greenhouse gas emissions and supported the action workshop on *university catering*. At the request of the SWO, the measures are now being monitored internally there and are therefore no longer listed in the university's catalogue of measures.

City of Oldenburg

At the expert level, direct contact and dialogue was established with the head of the Climate Action department at the start of the project. The head contributed to the *Climate kick-starter* event to officially present the project with a little insight into the city's carbon neutrality process. Invitations sent to the city of Oldenburg's Mobility Department to attend the *Everyday mobility* action workshop were unfortunately not taken up. There is also a regular exchange between the city's and university's leaders (Presidential Board, mayor) where the subject of climate action & sustainability plays a role. In addition, the climate action manager is a deputy member of the municipal committee for urban green spaces, environment and climate.

Expert level 'Climate action & sustainability' of other universities

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 research groups, as well as a united front vis-à-vis other stakeholders, such as the Lower Saxony Ministry for the Environment.

Other universities

There is a loose exchange of ideas with other universities through the network via the Local Authorities Guideline, even beyond the state of Lower Saxony. FH Münster deserves special mention here, where the same project to develop the climate action project was started at the same time and where it was therefore possible to have an in-depth exchange about the current progress of the project.

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'.

6.1.3.3 Communication channels and events

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

Digital communication channels

Social media

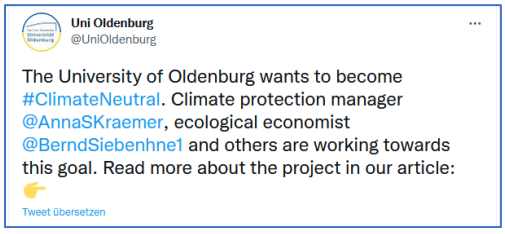

Figure 10 Twitter post about the start of the project

In 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.

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 the project's progress 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.

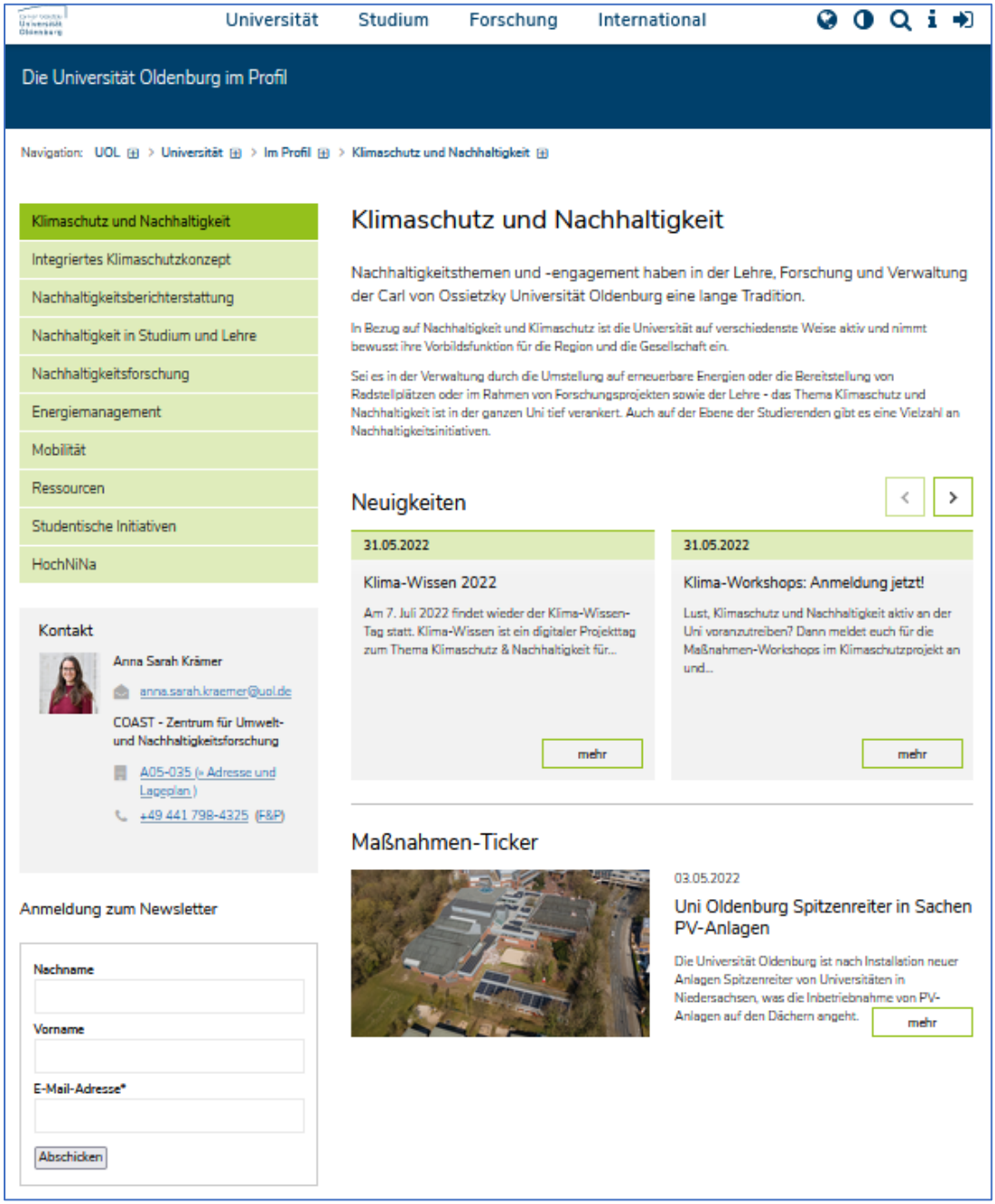

Figure 11 Homepage of the "Climate Action & Sustainability" website

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 to 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)

Analogue communication channels

UNI-INFO


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

The 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 in the magazine, for example at the start of the project and when publishing the greenhouse gas emissions.

Figure 12 UNI-INFO Oct. 2021 issue

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.

Figure 13 Green board in the canteen foyer, May 2022

Flyers

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

Posters

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.

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 briefly outline their activities in this field during the event. Finally, attendees were able to ask any questions. Almost 200 people attended the event.

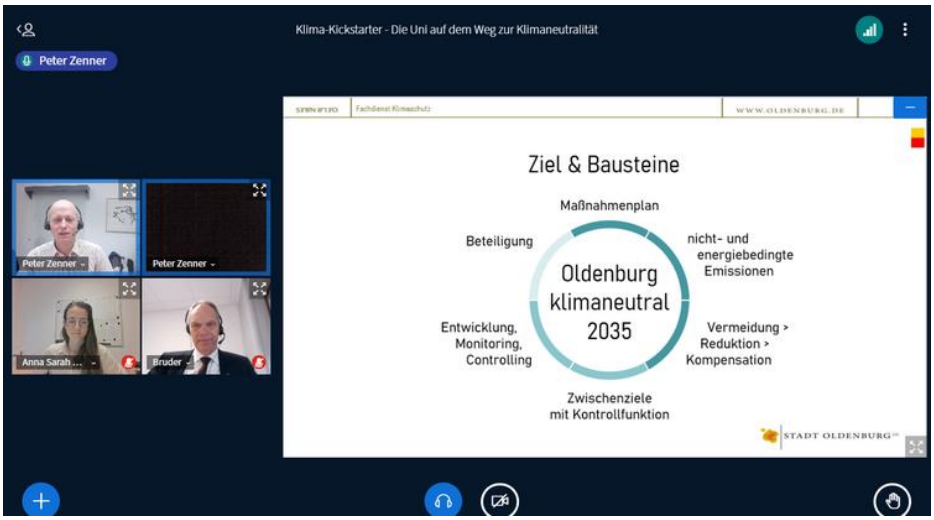

Figure 14 Screenshot of the Climate kick-starter with Peter Zenner, Anna Krämer & Prof. Ralph Bruder

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.

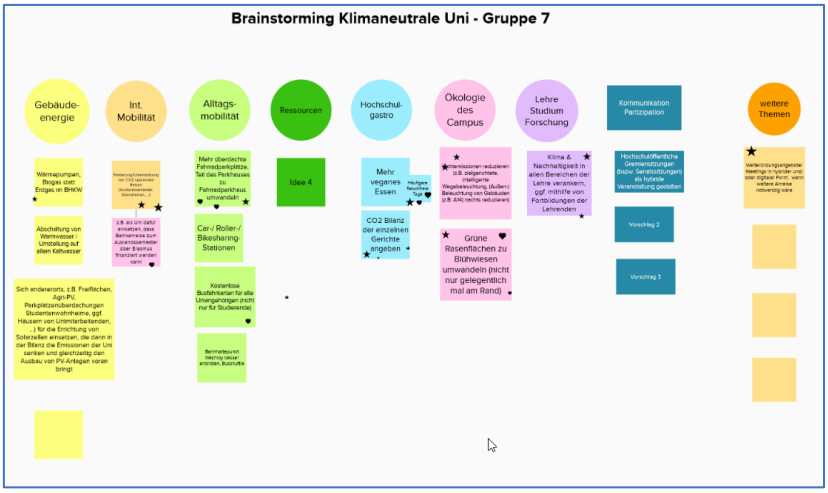

Figure 15 Screenshot of the MURAL board from the brainstorming session

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

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 international mobility workshop

Figure 19 Insight into everyday mobility workshop (2)

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[3].

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 university departments or are provided by the departments.

[3] 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 CO_2e/a
- Reduction of per capita GHG emissions in t CO_2e/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 CO_2e/a
- Reduction of per capita GHG emissions in the area of Energy & Construction in t CO_2e/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 CO_2e/a
- Reduction of per capita GHG emissions in the area of everyday mobility in t CO_2e/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 CO_2e/a
- Reduction of GHG emissions in the area of business trips in t CO_2e/a
- Reduction of GHG emissions in the area of business trips per employee in t CO_2e/a/p
- Reduction of GHG emissions in the area of semesters abroad in t CO_2e/a
- Reduction of GHG emissions in the area of semesters abroad per student in t CO_2e/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 CO_2e/a
- Reduction of per capita GHG emissions in the area of resources in t CO_2e/a/p

6 - University catering

Whilst the greenhouse gas emissions for university catering were still considered in the base assessment for 2019 and 2020, this sphere of activity will no longer be considered in the University of Oldenburg's greenhouse gas emissions in the future at the request of the Studierendenwerk Oldenburg. No further indicators are therefore mentioned for this sphere of activity.

The collection of these indicators is linked to the update of greenhouse gas emissions, so the data is collected every two years. This period is deliberately timed to coincide with the monitoring cycles of Division 4 to make the data provision process as efficient as possible.

7.3 Actual and target values of the indicators

The target values for 2030 have been determined in the scenario development (Chapter 3.2). The target values for per-capita indicators are based on the same number of university members from 2019 (18,986 overall, 16,244 of whom are students). Some of the values can be taken directly from the scenario development prepared by TARA Ingenieursbüro. These values are marked with *. The values for 2026 are derived from the percentage decrease in overall emissions of 29.92%. The values for the target year 2030, which cannot be taken directly from the scenario development, are derived from the percentage difference in GHG emissions in this sphere of activity.

1 - General

Indicator	Description	Current value 2019	Target value 2026	Target value 2030
1a	Reduction of GHG emissions overall in t CO2e e/a	21,378	14,982*	6,864*
1b	Reduction of GHG emissions overall in t CO2e/a/p	1.13	0.79	0.36

Table 26 Actual and target values for 2026 and 2030 - general

2 - Energy & Construction

Note: The reduction in emissions in the area of "Energy & Construction" from 2026 to 2030 is 44.11%.

Indicator	Description	Current value 2019	Target value 2026	Target value 2030
2a	Reduction of GHG emissions in the area of "Energy & Construction" overall in t CO_2e/a	14,430	10,113	5,652*
2b	Reduction of per capita GHG emissions in the area of "Energy & Construction" in t CO_2e/a/p	0.76	0.53	0.3
2c	Reduction of energy consumption overall in MWh/a	43,731	30,647	17,129
2d	Reduction of per capita energy consumption in MWh/a/p	2.3	1.61	0.9
2e	Reduction of electricity consumption overall in MWh/a	19,020	13,329	7,750
2f	Reduction of per capita electricity consumption in MWh/a/p	1.0	0.7	0.39
2g	Reduction of heat consumption overall in MWh/a	24,710	17,317	9,678
2h	Reduction of per capita heat consumption in MWh/a/p	1.3	0.91	0.51
2i	Increase in the proportion of renewable energies in %	1.53%[4]	XX	XX

Table 27 Actual and target values for 2026 and 2030 - Energy & Construction

3 - Everyday mobility

Note: The reduction in emissions in the area of "everyday mobility" from 2026 to 2030 is 99.4%.

Indicator	Description	Current value 2019	Target value 2026	Target value 2030
3a	Reduction of GHG emissions in the area of "everyday mobility" overall in t CO2e/a	4,528	3,173	19*

[4] Proportion of RE in electricity consumption

3b	Reduction of per capita GHG emissions in the area of “everyday mobility” in t CO2e/a	0.24	0.17	0
3c	Increase in the proportion of bicycle usage for travelling to/from the university in %	Not available	XX	XX
3d	Reduction in the proportion of car usage (cars powered by fossil fuels) in %	Not available	XX	XX

Table 28 Actual and target values for 2026 and 2030 - everyday mobility

4 - International mobility

Note: The reduction in emissions in the area of “international mobility” from 2026 to 2030 is 8.71%.

Indicator	Description	Current value 2019	Target value 2026	Target value 2030
4a	Reduction of GHG emissions in the area of “international mobility” overall in t CO_2e/a	1,540	1,079	985*
4b	Reduction of per capita GHG emissions in the area of “international mobility” in t CO_2e/a	0.08	0.06	0.05
4c	Reduction of GHG emissions in the area of “business trips” in t CO_2e/a	1,107	775.79	594
4d	Reduction of GHG emissions in the area of “business trips” per employee in t CO_2e/a/p	0.4	0.28	0.22
4e	Reduction of GHG emissions in the area of “semesters abroad” in t CO_2e/a	443	310	391
4f	Reduction of GHG emissions in the area of “semesters abroad” per student in t CO_2e/a/p	0.03	0.02	0.02
4g	Increase the take-up of funding opportunities for sustainable transport for student mobility in €	Not available	XX	XX
4h	Reduction of distance travelled by plane for business trips, in km	5,248,128 km	XX	XX

Table 29 Actual and target values for 2026 and 2030 - international mobility

The target formulations for the area of *international mobility* can only be considered with regard to the trade-off with the aspiration of internationalisation. When developing the climate action concept, the measures and correspondingly the target formulations for this sphere of activity, this trade-off cannot be resolved or eliminated.

5 - Resources

Indicator	Description	Current value 2019	Target value 2026	Target value 2030
5a	Reduction of GHG emissions in the area of “resources” in t CO2e/a	348	244	169*
5b	Reduction of GHG emissions in the area of “resources” per employee in t CO2e/a/p	0.13	0.09	0.06

Table 30 Actual and target values for 2026 and 2030 - resources

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 stakeholders presented in Chapter 6.1.2 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 (see Chapter 4.3).

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 university* research group (see Chapter 6.1.3.1). 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. Stakeholder participation is explained in detail in Chapter 6.

Annex

Annex 1 – List compiled of proposals for measures

Energy & Construction

Workshop

- Space management → cultural shift
- Develop new room allocation concepts
    - Pilot projects in individual schools
    - Monetary incentive models
    - Hybrid large lectures and query preference
- Communication & information on energy-saving behaviour
- Establish building manager for energy & sustainability
- Parking space PV systems
- PV on facades
- Wind turbine on campus
- Use waste heat
- Heat pumps & geothermal energy
- Cool buildings with roof greening & facade renovation
- Wind recovery from WindLab
- Motion sensors in corridors & toilets
- Participation in wind farm
- University's own large-scale wind turbine
- Energy cost budgeting
- Internal carbon price
- Visualisation of consumers

Brainstorming event after environmental stocktaking

- Tips on how to save energy in your office
- Turn light off when you leave a room
- Switch off heating overnight / over weekend
- Focus on renewable energy
- Fuel cogeneration unit as a transition with biofuels
- University-owned wind farm
- Wood pellet power plant for heat
- Select green gas provider
- Use heat pumps
- Use storage options for energy
- e.g. BTES system for heat
- Record electricity demand by type
- Establish system of financial incentives to save energy in the office
- CO2 traffic lights in seminar rooms
- Improve building insulation

- New office concept (reserve “mobile desks”; pooling desks; office sharing)
- Use innovative technologies for new builds (e.g. windows with solar cells)
- Establish local heating networks at local/municipal level
- Use synergy effects (use waste heat for heating)

Submitted via email

- Abolish / shut down the small data centres in the schools as these have bad PUE ratings
- Consider energy efficiency in website design
- Motion sensors in toilets
- Facade and roof greening
- Use fitness and sports equipment in the Sports Fitness and Health Centre to generate energy

<u>International mobility</u>

Workshop

- Strategy of internationalisation
    - Explicitly include trade-off between internationalisation & sustainability in strategy
    - Select easily accessible partners (EU)
    - Focus on Europe → networks
    - Better visibility & communication of emissions caused by business trips → information campaign (central support)
    - Create incentives to take the train instead of flying
    - Different formats → promote virtual formats
    - Make appointments to professorships more in line with the focussed internationalisation strategy
- Business trips
    - Short-haul flights up to 1,000 km are no longer funded (take into account hardship cases, number of changes)
    - Compensation for more expensive environmentally friendly choice of transport
    - Internal tax on flying from funds from the organisational unit’s funding bodies
    - International conferences must be offered with a hybrid format
    - Raise awareness (is the business trip really worth it? Which means of transport is selected taking into account CO2 emissions?) (Explain the climate impact of the business trip)
- Student mobility
    - Encourage & promote long / extended trips for long-distance journeys
    - Only allow summer school funding in Europe
    - Consider incomings
    - Focus of advice on Europe → strengthening European partnerships

    - Proactive advice on alternative travel options
    - Include a reference to mobility funding in the confirmation of a place at university
    - Achieve the goal of interculturality in a variety of ways (online formats, teaching units with international components + semesters abroad)

Brainstorming event after environmental stocktaking

- Support green travel
- Limited number of business trips per year
- CO2 budget for flying
- Take the train instead of flying (especially for short distances)
- No more Business Class travel
- Ensure that train travel for semesters abroad is funded e.g. by Erasmus
- Converting university vehicles to electric vehicles
- Is travel really necessary?
- Increased use of online meetings / online conferences as standard
- Connected mobility
- Combine several events with one another (e.g. conference with teaching abroad)
- GHG calculation on an individual basis for business trips (incl. interdepartmental comparison)

Submitted via email

- Preference for more environmentally friendly means of transport for business trips

<u>Everyday mobility</u>

Workshop

- Bicycles
    - More bicycle repair options
    - Bike sharing options as part of the semester public transport pass
    - Bicycle routes (signage, maps)
    - Support for the purchase of e-bikes / bicycles
    - Permanently usable lockers for students
    - Bicycle hire
- Cars
    - Parking management
    - Appealing awareness campaigns
    - Convert parking spaces, e.g. to bicycle parking spaces
    - Carbon account for staff
    - Mobility challenges between schools / project groups
    - Think about weather (promote public transport more in winter and cycling more in summer)
    - Provide parking areas with PV systems

    - Switching to e-vehicles for university vehicle fleet
    - Increase proportion of mobile work
- Public transport
    - Increase frequency
    - More direct connections to university
    - More (exclusive) bus lanes
    - Wechloy train station: connections to Ammerland & East Frisia (+ provide rental bikes there)
- Strategy / partnerships
    - Permanent networking of stakeholders (representatives, working group)
    - Parking fees directed to mobility fund, e.g. to fund e-bikes
    - Partnership with: city, DB, NWB, VWG, LNVG, cambio, etc.
    - Awareness campaigns
    - Duty to always think about sustainable transport (e.g. for business trips, excursions, etc.)

Brainstorming event after environmental stocktaking

- Install portal for car-sharing
- Expand car/scooter/bike-sharing system
- More (covered) bicycle parking spaces
- Convert part of car park into bicycle park
- Public transport subsidies, e.g. (free) semester public transport pass for staff
- Connect Wechloy train station with the campus and shuttle bus between campuses
- Promote e-transport and hydrogen transport
- Charging facilities for electric cars
- Continue to promote working from home
- Establish co-working spaces / branches in the region to reduce travel distances
- Company bikes (that can be rented)
- Possibly with bonus system for distance travelled to work
- Free repair service for employees (during working hours) who regularly cycle to work
- Introduce parking fees on campus

Submitted via email

- Charging stations for electric cars
- Company bike (VII)
- Consider changing rooms and shower facilities in new buildings
- Secure & covered parking facilities for bikes (II)
- Demand better cycle paths to the university from the city
- Cargo bikes for transportation on campus (II), cargo bike rental
- Better information provided about the employees' transport pass (Jobticket)
- Improve mobility in WHV: better public transport connections from the station to the site, on-site bike-sharing, the last three stations are no longer located in VBN zone
- Re-purpose car parks as bicycle parks
- Cooperation with bicycle dealers, repair service and vouchers, etc.

- Bicycle map for the university and its access routes
- The cycle paths from Ammerländer Heerstraße towards the nursery / studiO should be open on both sides in both directions or converted into a bicycle road.
- Parking management (with the exception of disabled spaces)
- Stop sign at exit of Uhlhornsweg underground car park
- Open the footpath at HT campus / open entrance to sports centre for bikes

Resources

Workshop

- Procurement
    - Do without
    - Shared use (→ determine who is responsible)
    - Promote durability
    - Repair possible
    - Set central standards → adapt the purchasing policy taking sustainability factors into account. Develop catalogue of criteria for sustainable procurement
    - Availability of spare parts as criterion
    - Use regional products
- Useful life
    - Rental service in departments / schools for standard needs
    - Internal recycling centre
    - 'Use limitation' / data economy
    - Reinforce personal responsibility in the area (sustainability officers)
    - Upcycling / designing furniture
    - Carry out more repairs (human resources required)
    - Specify & adhere to useful life (minimum)
    - Second life through gift market
- Disposal
    - Check further options for giving away, e.g. auctions
    - Make disposal routes transparent
    - Raise awareness of waste separation
    - Avoid paper through digitalisation

Brainstorming event after environmental stocktaking

- Use carbon-neutral construction materials (e.g. wood)
- Use green cleaning products
- Buy locally
- Repair instead of buying new (furniture, 'green IT', etc.)
- Use less paper of recycled paper
- Shared use of infrastructure instead of multiple purchases (e.g. printers, coffee machines, etc.)
- Support purchase of long-lasting products

- Expand disposal system further
- Fewer waste bags, better waste separation
- Default copier setting 'double-sided'
- Free water dispensers
- Reusable medical masks (e.g. Livinguard)
- Gift market / flea market on campus
- Signs on toilets 'One towel is enough!'

Submitted via email

- Sustainable laboratory management

Campus ecology

Workshop

- Forest campus
- Tree sponsoring programme (e.g. TU Dresden)
- Develop integrated utilisation concept
- Not only 'beautiful' things like flowering meadows, but special focus on ecology, e.g. with woody plants or shrubbery
- Mow lawns less, create litter meadows
- Link measures with environmental education
- Unsealing of traffic areas
- Create biotopes
- Roof greening

Brainstorming event after environmental stocktaking

- Counteract soil sealing
- More roof and facade greening
- Reduce energy consumption through lighting and light pollution
- Smart path lighting
- Reduce outdoor lighting at night (e.g. A14)
- Use water-cooled heat pump systems for air-conditioning
- More biodiversity
- Create more green spaces / ponds / lakes on campus
- Plant trees and create flowering meadows / fruit and vegetable patches
- Possibly link to courses / planning projects / urban gardening project

Submitted via email

- More roof and facade greening
- Redesign the space in front of V03
- Black insect nets in front of windows
- Sheets to protect against bird strike

Research, studying & teaching

Workshop

- Develop concept - research
    - Initiate & support energy modernisation and innovation through research projects
    - Categorise research projects by climate relevance & SDGs
    - Calculate & reduce carbon footprint of projects
    - From the project, formulate requests to departments for research projects that can have a supporting effect.
    - Evaluation / impact analyses - quantitative, but also qualitative (impacts)
    - Self-efficiency & acceptance research
    - Internal expert councils for the various areas
- Climate action & sustainability in research in general
    - 'Environmental university'. Climate action as a cross-cutting and interdisciplinary issue
    - Align funding acquisition with mission-oriented innovation policy (e.g. European Green New Deal)
    - Research transfer in regional infrastructure projects (→keep goal of carbon neutrality in mind)s
    - Pool & use reserves and 'remaining funds' for climate / sustainability projects (instead of last-minute purchases)
    - Promote climate as a research agenda with funding agencies
- Develop concept - teaching
    - Use student projects to implement ideas / concepts (e.g. for ecology) → challenge-based learning
    - Use theses for climate action projects / subject pool for BA & MA on aspects of carbon neutral university
    - Integrate SDGs / contribution in module descriptions
    - Qualification of lecturers / start-up consulting: how do I integrate sustainability in my teaching?
- Climate action & sustainability in teaching in general
    - Environmental awareness in Medicine (e.g. hospital waste management)
    - Integrate climate & sustainability in all degree programmes (subject-related), particularly in teaching degree
    - Establish more options on climate & sustainability in the area of specialisation & similar module pool in the Master's (interdisciplinary)
    - New climate teaching programme: certificate programme, interdisciplinary Master's on climate
    - More links between natural science and social science study content (joint modules)

Brainstorming event after environmental stocktaking

- Incorporate more climate-related content in curriculum, such as sustainability
    - Integrate into courses (with the help of teacher training)
    - Create new content (area of specialisation; MSc programme; certificate programme; courses such as 'studium oecologicum'; 'Climate and Future' degree programme)
    - Support / further expand existing content
- Promote digitalisation
- Embrace research for climate action
    - e.g. development of climate sensors
    - e.g. develop techniques for converting petrol/diesel cars to electric
- Calculate and optimise carbon handprint of teaching/research

Communication

Brainstorming event after environmental stocktaking

- Create space for further ideas/suggestions for CO2 reductions
- Competitions to come up with ideas with prizes for the best ideas
- Implement continuous improvement suggestions (at least one idea per year per employee)
- Increase awareness of environmental friendliness
- Display current energy consumption as part of a 'news sticker'
- Nudging in rooms (e.g. with stickers?)
- Canteen 'speed dating' on various issues
- Embrace research for climate action

University catering

Workshop

- Regional / seasonal
    - Identify 1 seasonal dish per day
    - Noticeboard with information on seasonal food
    - Increase number of traditional dishes, e.g. kale
    - Optimise menus
    - Focus on fewer dishes, less wide range
- Rubbish / waste
    - Leftovers at half price?
    - Get rid of paper cups at all sites
    - Vouchers for reusable cups / bowls for students
    - More portioning variations
    - Use food-sharing hubs for food
    - Provide spices in reusable packaging again
    - Up-to-date planning

    - More water dispensers
    - Air frying
    - University's very own 'too good to go'
    - Transparency/education 'How much was disposed of last week/month/yesterday?', e.g. with visualisation
- Veggie / meat
    - Mandatory vegan dish at all canteens every day
    - Weekly veggie days (1x, 2x, +)
    - More appealing recipes
    - More feedback options
    - Establish vegetarian / vegan food as standard
    - Better labelling of sides in Wechloy (vegan?)
    - Expand vegan dessert option
    - Communicate origin, GHG impact, farming method more effectively
    - Apply DGE (German Nutrition Society) standard to university catering
    - Offer better prices for environmentally friendly food (e.g. loyalty card, weekly average costs)
- Other
    - Fact wall at canteen entrance (CO2 impact)
    - Reduce cooling requirements
    - Reduce deep-frying even further? → oil consumption
    - Avoid the word 'vegan'
    - Communication in orientation week
    - Use classes in general for communication

Brainstorming event after environmental stocktaking

- Use seasonal/regional food and provide information on origin
- More vegan/vegetarian options
- Weekly veggie days
- Higher prices for meat / subsidise vegan dishes
- Daily vegan option in the Wechloy canteen
- Use energy-efficient devices
- Avoid (plastic) packaging / disposable cups
- Specify carbon footprint of dishes

Submitted via email

- Higher prices for meat dishes or dishes with animal products
- Offer tap water instead of pre-packaged plastic bottles

Annex 2 – Action profile template for project promoter

Vorlage Maßnahmenblatt

Handlungsfeld: *z.B. V=Verkehr, PH=Private Haushalte, G=Gewerbe*	**Maßnahmen-Nummer**	**Maßnahmen-Typ:** *z.B. Ordnungsrecht, Förderung, Vernetzung, ÖA, Technische Maßnahmen*	**Einführung der Maßnahme:** Kurzfristig *(0 - 3 Jahre)* Mittelfristig *(4 – 7 Jahre)* Langfristig *(mehr als 7 Jahre)*	**Dauer der Maßnahme**
Maßnahmen - Titel				
Ziel und Strategie: *Hier wird das Ziel der Maßnahme beschrieben und erläutert, wie die Maßnahme die erarbeiteten Klimaschutzszenarien unterstützt.*				
Ausgangslage: *Hier wird dargestellt, welche Ausgangsvoraussetzungen in diesem Handlungsfeld bestehen (eventuell auf Basis einer SWOT-Analyse).*				
Beschreibung: *Die Maßnahme wird hier erläuternd dargestellt. Je nach Umfang der Maßnahme kann dies auch bis zu einer Seite lang sein.*				
Initiator: *Hier wird der Hauptakteur (Initiator, Träger) genannt.*				
Akteure: *Hier werden weitere wichtige Akteure, Partner genannt.*				
Zielgruppe: *Wer soll durch die Maßnahme bewegt werden, etwas zu tun?*				
Handlungsschritte und Zeitplan: *Hier werden die Handlungsschritte in zeitlicher Einordnung dargestellt. Je nach Maßnahme kann es sinnvoll sein, Entscheidungsprozesse und dafür notwendige Zeiträume darzustellen (z.B. Gemeinderatsbeschluss).*				
Erfolgsindikatoren/Meilensteine: *Benennung der wichtigsten Meilensteine während der Umsetzungsphase, an denen der Erfolg der Maßnahme sowie der Fortschritt gemessen werden kann.*				
Gesamtaufwand/(Anschub-)kosten: *Hier werden die Kosten (Sachkosten und Personalkosten) für die (Anschub-)Maßnahme aufgeführt.*				
Finanzierungsansatz: *Hier wird beschrieben, wie die Maßnahmenkosten finanziert werden sollen. (unter Angabe der Beteiligung durch Dritte, z.B. durch Sponsoring, Contracting, Förderung etc.)*				
Energie- und Treibhausgaseinsparung: *Welche Art Energie- und THG-Einsparpotenzial wird mit der Maßnahme adressiert? (wenn möglich inkl. quantitativer Angabe des Potenzials)*				
Welche **Endenergieeinsparungen (MWh/a)** *werden durch die Maßnahmenumsetzung erwartet? (soweit möglich quantitativ, sonst semiquantitativ)*		*Welche* **THG-Einsparungen (t/a)** *werden durch die Maßnahmenumsetzung erwartet? (soweit möglich quantitativ, sonst semiquantitativ)*		
Wertschöpfung: *Hier qualitativ das regionale Wertschöpfungspotenzial angeben.*				
Flankierende Maßnahmen: *Wichtige flankierende Maßnahmen werden mit den Nummern aufgeführt.*				
Hinweise: *Hier stehen beispielsweise* • *Beispiele zu Projekten anderer Akteure / Regionen* • *wichtige Empfehlungen* • *Hemmnisse, die unbedingt berücksichtigt werden sollten* • *soziale Aspekte (z.B. Akzeptanz, Beteiligung)* • *ökologische Aspekte (z.B. Naturschutz, Ressourcenverbrauch)* • *Wechselwirkungen mit Klimawandelanpassung (z.B. Synergien oder Zielkonflikte)*				