

ENVIRONMENTAL STATEMENT 2015
Environmental Information
for the sites Main Campus (Cottbus)
and Bad Saarow

Masthead

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¹ The information published here relates to the Main Campus in Cottbus and the Bad Saarow campus of the BTU Cottbus-Senftenberg.

THE BTU COTTBUS – SENFTENBERG

The Brandenburg Technical University Cottbus–Senftenberg (BTU CS) has a student body of 10,000, making it the second largest university in the federal state of Brandenburg and its only technical university. As of July 2013, the BTU CS was newly founded through the fusion of the Brandenburg Technical University Cottbus and the Lausitz University of Applied Sciences. This process was carried out under the legal restructuring of the higher educational institutions within the region of Lausatia. Cottbus, Cottbus-Sachsendorf and Senftenberg comprise the campuses of the new university.

The former BTU Cottbus had implemented an environmental management system in 2010 for its campuses in Cottbus and Bad Saarow according to the EMAS Regulation (EG) No. 1221/2009. This environmental management system was revalidated in June of 2013, and it will be further implemented at these two campus sites. This environmental statement is thus comprised of information pertaining exclusively to these sites. For the sake of simplification, the sites will hereafter be referred to collectively as BTU Cottbus.

The main areas of research and teaching at BTU Cottbus are environment, energy, material and building, as well as information and communication technology. The BTU’s Main Campus is located in Cottbus, and the satellite campus in Bad Saarow is restricted to one historical building (built in 1912, renovated in 1987 and 1998), where the Chair of Freshwater Protection is located.

The continuation of the environmental management system in accordance with EMAS (Eco-Management and Audit Scheme) at the BTU CS is testament to the university’s commitment to contributing solutions for environmental and resource problems and to continually building upon these. This holds equally true for the optimization of material and energy streams within the university itself, for the university’s research program, and for the further development of the environmental sciences curriculum.

SITES WITH ENVIRONMENTAL MANAGEMENT (BTU COTTBUS)

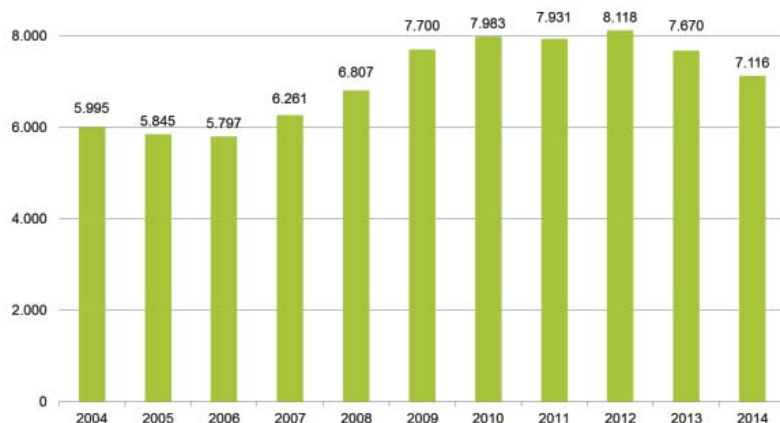
Cottbus (Main Campus)	Bad Saarow
Platz der Deutschen Einheit 1	Seestraße 45
03046 Cottbus	15526 Bad Saarow

Members 2013	Students:.....6,002
	Employees:.....1,114
	(Full-time equivalents)

Area	Total area:.....297,461 m ²
	Built area:.....130,492 m ²

Main usable area	Cottbus:.....81.106 m ²
	Bad Saarow:.....470 m ²

DEVELOPMENT OF MEMBERSHIP COUNT AT THE BTU COTTBUS



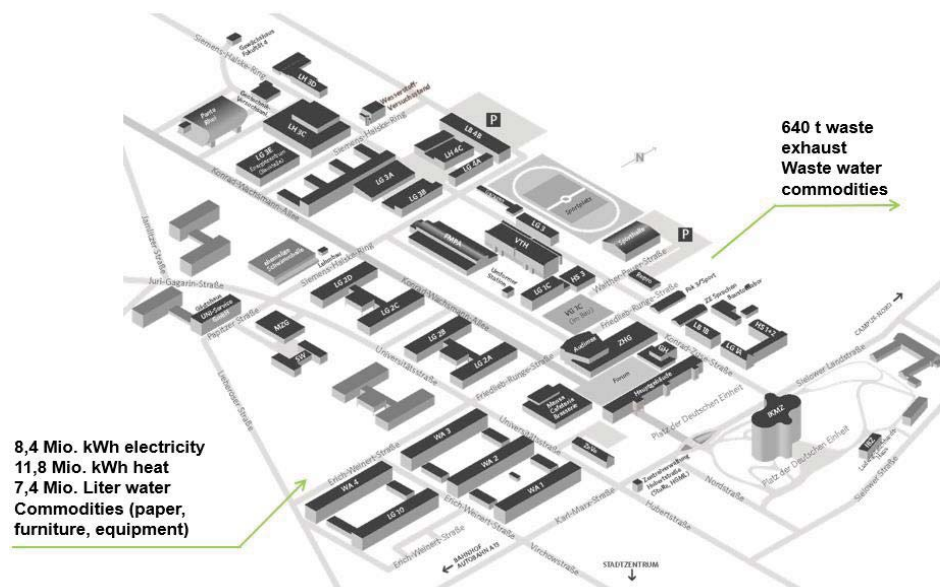
ENVIRONMENTAL PERFORMANCE OF THE BTU COTTBUS

The BTU Cottbus contributes positively to environmental protection by integrating environmentally relevant aspects within the university's curriculum and research. In winter semester 2014/15, the BTU Cottbus held approximately 160 different courses within the fields of environmental studies and sciences. Moreover, numerous environmentally relevant research projects were carried out. Some of the focal topics of the BTU curriculum and research include:

- Faculty 1 – Research projects related to solar cell development, etc.
- Faculty 2 – Energy and resource efficient building
- Faculty 3 – Development of environmentally protective/ friendly materials and production processes
- Faculty 4 – Research and lectures on various environmental issues, such as renewable energies and sustainable land use practices

The direct and indirect environmental aspects arising from the activities of the BTU Cottbus are evaluated with the aid of the ABC method according to their respective quantitative importance, potential hazard, and their projected future development. The significant environmental aspects will be explained in the following sections.

DIRECT ENVIRONMENTAL ASPECTS



At the BTU Cottbus, ongoing efforts are taken to record energy and water consumption data, as well as waste volumes. These represent the core indicators of environmental performance. Renewable energy sources provided for approximately 50% of the entire energy consumption (electricity and heat) at BTU Cottbus in 2014, as electricity is received to 100% as green energy since the beginning of 2014.

The energy consumption accounted for the primary ecological impact. Though it has only been partially possible to track material input thus far, the level of resource consumption required for energy provision is far higher than that of material consumption at the BTU Cottbus. Even in consideration of product life cycles, neither paper volumes nor administrative equipment such as computers, printers, copiers, etc. used at the BTU Cottbus play a dominant role in terms of ecological impact.

Overall Consumption at the BTU Cottbus

Core Indicators (in absolute terms)	2009	2010	2011	2012	2013	2014	% Change - 2013 to 2014
Electricity [MWh]	7,838	7,963	8,255	8,333	9,276	8,391	-9.5
Heat Energy ² [MWh]	12,553	12,998	12,353	11,660	11,106	11,831	6.5
CO ₂ Equivalent Emissions from Electricity and Heat Consumption ² [t]	5,766	5,856	5,876	3,938	1,989	1,059	-46.8
Renewable energy genera- tion- total [MWh]	665	769	886	617	992	1,041	4.9
- of which heat from wood chips plant [MWh]	665	769	872	511	891	726	-18.4
-of which heat from geother- mal pump [MWh]	-	-	-	-	-	208	-
-of which electricity from PV plant [MWh]	-	-	14	107	101	106	4.8
Water [m ³]	15,414	18,889	19,184	12,998	12,405	7,440	-40.0
Waste [t]	413	395	401	408	420	640	52.3 ³
-of which Hazardous Waste [t]	13	3.85	7.22	6.6	27.8	24.0	-13.5

Core Indicators (per capita)	2009	2010	2011	2012	2013	2014	% Change - 2009 to 2012
Electricity [MWh/person]	1.018	0.998	1.041	1.027	1.209	1.179	-2.5
Heat Energy ² [MWh/person]	1.63	1.63	1.56	1.44	1.45	1.66	14.7
CO ₂ Equivalent Emissions from Electricity and Heat Consumption ² [t/person]	0.75	0.73	0.74	0.49	0.26	0.15	-42.6
Renewable energy generation- total [kWh/ person]	86.4	96.3	111.7	76.0	129.4	146.4	13.1
Water [m ³ /person]	2	2.4	2.4	1.6	1.6	1.0	-35.4
Waste [kg/person]	53.6	49.5	50.6	50.2	54.8	89.9	64.1 ³
-of which Hazardous Waste [kg/person]	1.6	0.5	0.9	0.8	3.6	3.4	-6.8

² Adjusted for weather variations according to the weather station Lindenberg- source: Institut Wohnen und Umwelt (IWU)

³ Starting 2014 change of the calculation basis to investigate the amount of paper/ cardboard, lightweight packaging and mixed municipal waste. When calculating the arising amounts of recyclable materials, the degree to which the container is filled is no longer taken into account.

The environmental objectives set with the first EMAS validation in 2010 called for a reduction of specific heating energy consumption by 10% and of specific CO₂ emissions/CO₂ equivalents by 20% to be achieved by the year 2012. This goal was not only reached, it was surpassed. The per capita consumption figures resulting from heating energy were 11.9% lower than those of the year 2009. This was due, in part, to the renovations of the FMPA building (the research and material testing laboratory) and the Großer Hörsaal (Large Lecture Hall) that took place between 2010 and 2012, to the roof insulation of LG 1A, and to the awareness raising measures carried out during this time frame. However, despite these actions, a reduction of the specific electricity consumption by 5% as compared with 2009 was not realized. This is due, in large part, to the use of energy intensive research facilities and equipment, which often require cooling as well. For example, a cluster center with server equipment requiring intensive cooling was built in 2010. The frequency and duration of operation of those research facilities (e.g. high voltage equipment, laser equipment, laboratory devices) depends upon the availability of industry assignments and research projects. Thus, the electricity consumption resulting from research is not easily influenced. The specific electricity consumption has increased from 2013 to 2014. This is partly due to the lower numbers of students, the new buildings (energy center (2013), H₂-test station (2013) and availability building 1C (2014)) and the more intensive usage of the multipurpose building. However, the specific electricity consumption decreased again in 2014.

The Centre for Energy Technology (LG 3E) was taken over by the university in 2013. An innovative energy concept was developed for this building used for teaching and research. It is heated (and cooled) using a geothermal power pump and heat recovery from a cluster plant in a neighboring building. In 2014, approximately 208MWh of heat were generated using the heat pump and approximately 37MWh were generated with the heat recovery plant⁴.

Despite the relatively constant increase in electricity consumption, CO₂-emissions from electricity and heat generation have decreased by almost 50% in 2013 (and 2014- approximately 45%) at the BTU Cottbus in comparison to the previous year, as the electricity composition is changing towards an increased usage of renewable energies. Since 2014 the BTU Cottbus receives 100% green energy with a CO₂-emission factor 0g CO₂/kWh. This electricity is delivered by the Stadtwerke Potsdam.

Since 2014 the generation of renewable energy at the BTU Cottbus has been included as a core indicator. As part of the research project “e-Sol-Car” a photovoltaic plant with a power of 100kW_{peak} is operated on top of the FMPA building since 2011. Together with a battery storage device (with a usable capacity of 500 kWh) and 15 charging columns that are placed directly in front of the building, this PV plant is used for research about the storage and recovery of renewable energies using electric cars. The generated electricity is collected by the Chair Power Distribution and High-Voltage Engineering and is made available for the preparation of the environmental statement.

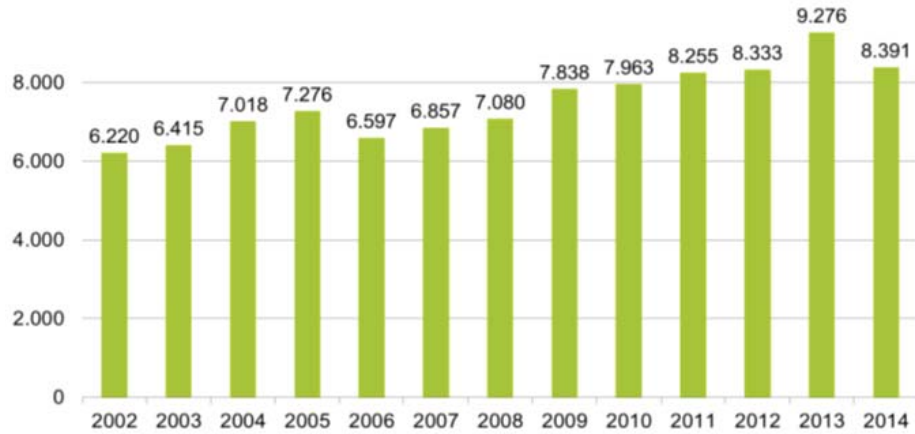
⁴ This data was provided by the Chair Building Physics and Building Techniques and by the building's management

The following graphs depict time lines⁵ for the rates of absolute and specific consumption. Here it can be seen that even in areas where absolute consumption has increased, the specific values have sunk since 2005. However, the specific electricity consumption is increasing again since 2010. In 2014 the lowest heat energy consumption value since the beginning of data collection at the BTU Cottbus in 1998 has been recorded. However, 2014 was the warmest year since the beginning of weather recordings .Thus, when adjusting the data 2014 for weather variations the value increases comparatively.

⁵ The consumption data was provided by the Lausatia universities facilities management company.

ELECTRICITY CONSUMPTION (in MWh)

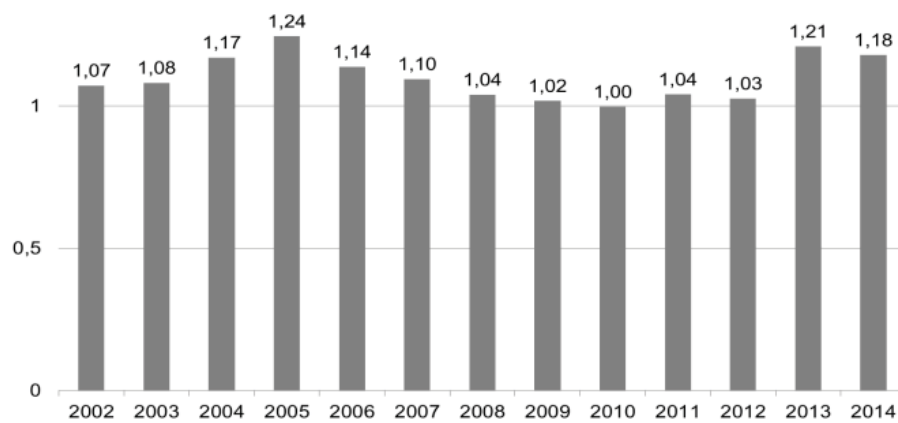
Total



Per capita

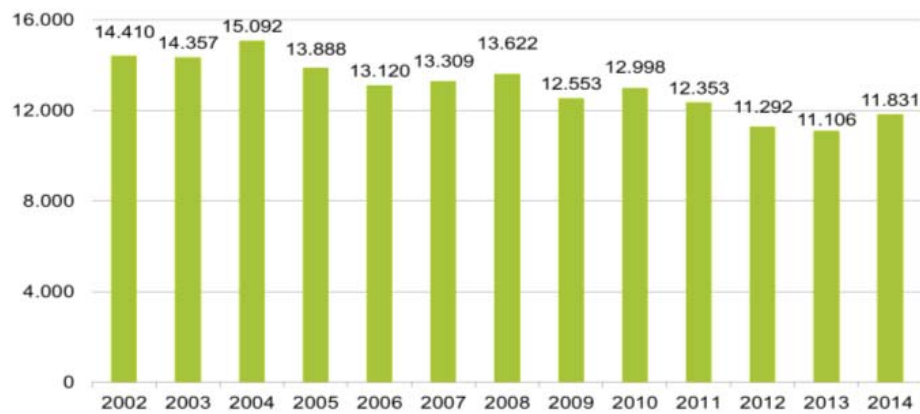
Objective: -5%

Base year: 2009



HEAT ENERGY CONSUMPTION (in MWh, climate adjusted)

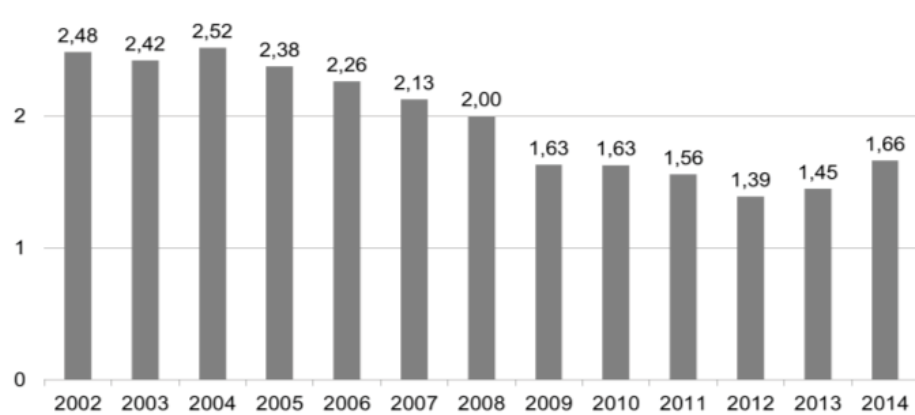
Total



Per capita

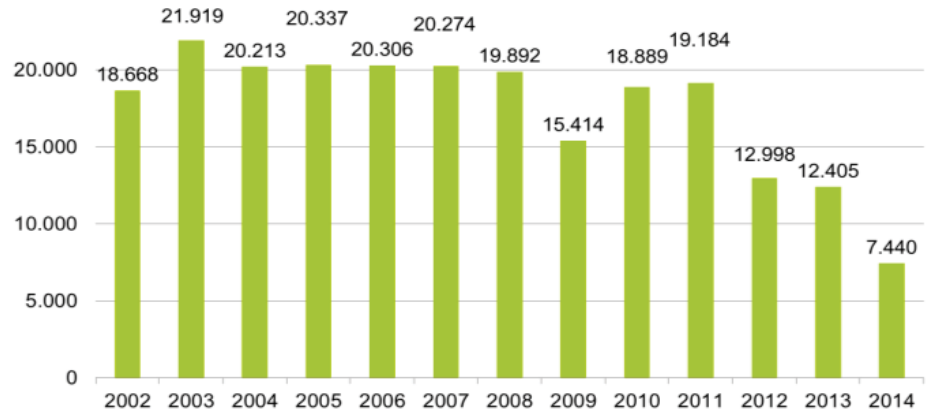
Objective: -10%

Base year: 2009

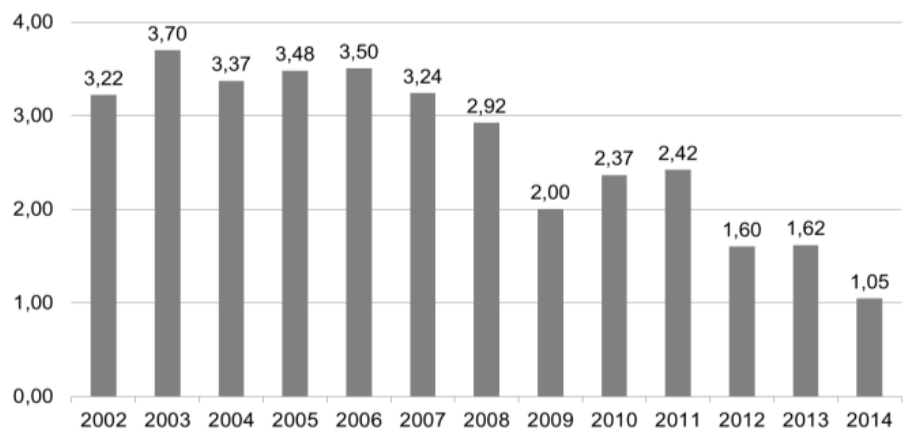


WATER CONSUMPTION (in m³)

Total

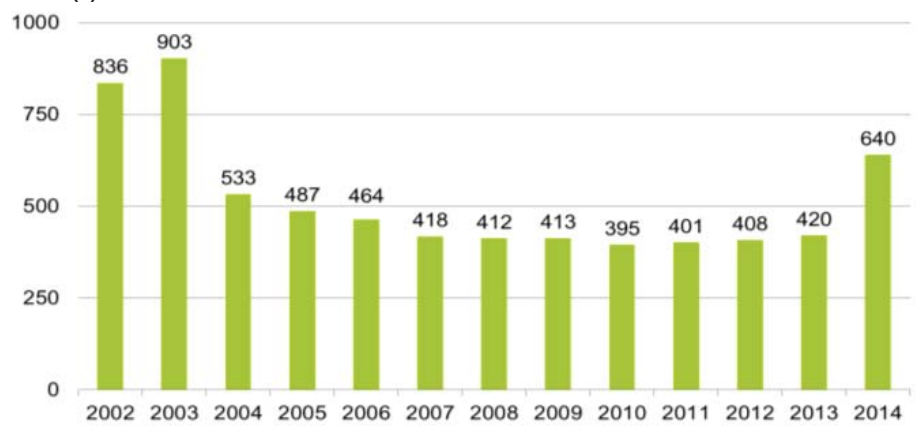


Per capita

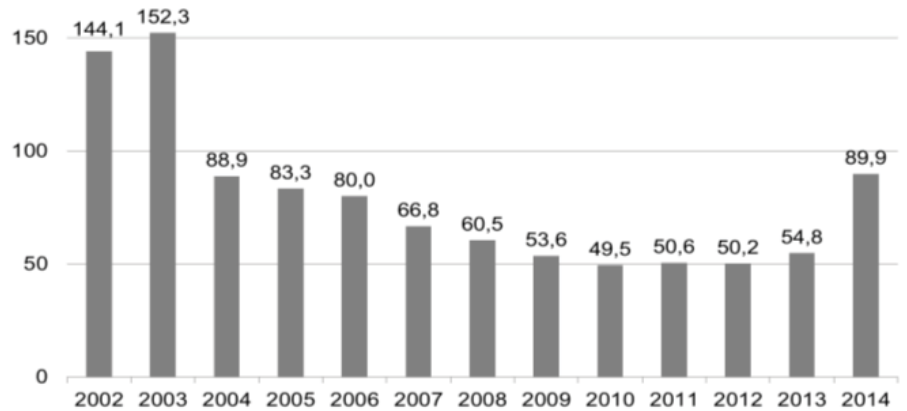


WASTE GENERATION (t)

Total



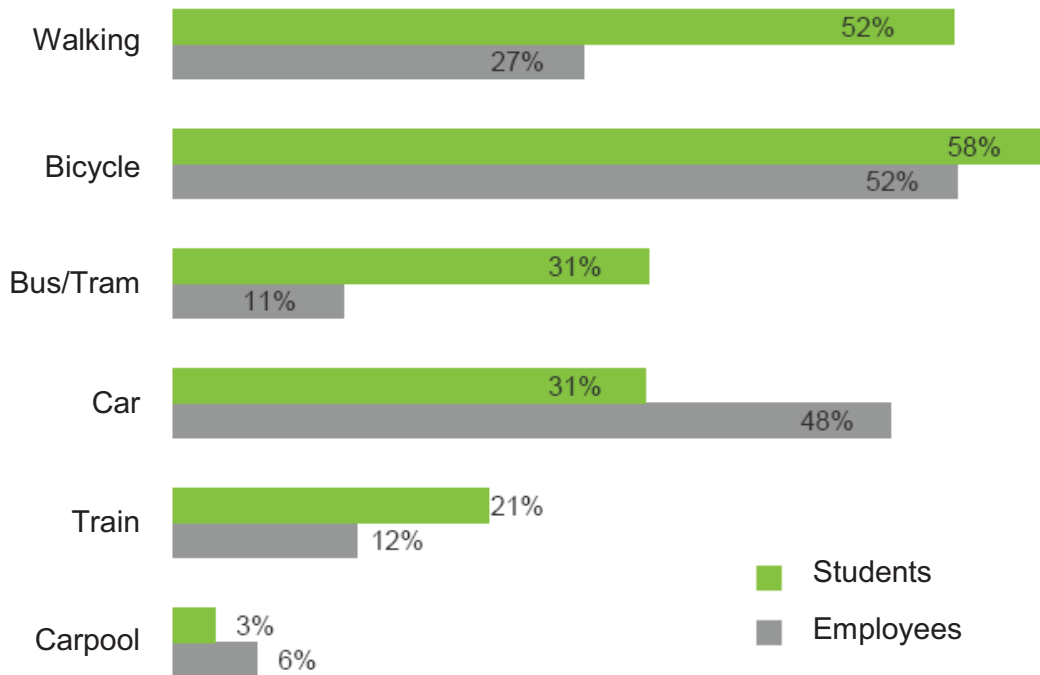
Per capita



INDIRECT ENVIRONMENTAL ASPECTS

The indirect environment aspects of the BTU Cottbus arise primarily from the Mensa, the student dormitories, and as a result of travel to and from the university. In terms of mobility behavior, the greater extent of students at the BTU Cottbus uses bicycles (58%) or walks (52%). These figures resulted from a representative survey held in 2009, for which multiple answers were possible. With this, the mobility behavior of BTU students can be classified as exemplary, and this can be attributed to both the centrally located campus and the close proximity of the student housing. Although employees use cars far more often, the bicycle is also their most used means of transportation.

MOBILITY BEHAVIOR OF STUDENTS AND EMPLOYEES



With respect to the food services in the Mensa and the energy consumption in the student dormitories, the operating company, the Studentenwerk Frankfurt Oder, and the BTU Cottbus work in cooperation. The Mensa's offer of organic and sustainable products has been continually expanded, thanks to the collaboration of engaged BTU students and employees and the Studentenwerk.

Positive indirect environmental aspects also arise through student initiatives and research conducted at the BTU Cottbus. Some exemplary, environmentally relevant research projects and student initiatives are briefly explained in the appendix to this document, on pages 24-31.

THE ENVIRONMENTAL POLICY OF THE BTU COTTBUS

As an educational institute for society's future decision makers, the university functions as a multiplier, and thus assumes a prominent responsibility toward both present and future generations. As a public institution of the federal state, the BTU Cottbus is particularly obliged to uphold the constitutional aim of environmental protection.

In signing the COPERNICUS-Charter, the BTU Cottbus committed itself to sustainable development in all areas. The university is also an active participant in the implementation of Cottbus' local Agenda 21. Thereby, the BTU Cottbus has the competence, the responsibility and the intention to practice and teach sustainability and environmental protection. We are conscious of the impact a university may have on the environment resulting from:

- practical operations of the university,
- research projects and their results,
- its role as a multiplier in the field of environmental education.

With this in mind, it becomes clear that a university's environmental impact far exceeds that of some other organizations. With full awareness of its environmental and political significance, the BTU Cottbus has committed itself within its environmental policy, at all levels of organization, to the following environmental guidelines:

1. EFFICIENT HANDLING OF FINITE RESOURCES

The university strives for an economical and conscious handling of all resources, which are utilized within the context of teaching and research assignments, as well as with daily operations. Consumed materials and waste are disposed of in an environmentally sound manner.

Consumption and emissions levels are reported and rated for each department. Balances are updated annually and reviewed in order to identify areas of potential optimization. From these reviews, measures are derived for further improvements in environmental performance.

2. PROCUREMENT

The chairs as well as other departments responsible for procurement oblige themselves to take into account environmental aspects when making investments or purchases. The most environmentally sound option shall be chosen wherever possible, always in consideration of the relevant legal and administrative regulations and the guidelines of economic activity. The university's suppliers and trade partners shall be involved in the efforts for improved environmental protection, whereby an active contribution to supporting and strengthening the regional economy is the aim.

3. CONSTRUCTION MEASURES, FACILITIES MANAGEMENT AND LAND USE

The use of environmentally sound materials, optimal land use, and resource-efficient future management decisions are the issues of high priority when reconstruction and building measures are undertaken at the university. Existing buildings are managed with the intention of efficient handling of resources. The use of renewable energy sources is supported wherever feasible.

4. OCCUPATIONAL SAFETY

With the knowledge that work safety, accident protection and environmental protection go hand in hand in most cases, measures are taken to prevent emissions and waste of energy due to accidents and improper handling.

5. LEGAL ASPECTS

Compliance with environmental laws and regulations is a matter of course for us. The university's responsible parties strive to go beyond legal regulations when setting and fulfilling environmentally relevant goals and objectives.

6. ACQUISITION AND TRANSFER OF KNOWLEDGE AT THE UNIVERSITY LEVEL

The university considers the acquisition and transfer of fundamental knowledge of environmental protection as its task. In doing so, an internal exchange of information occurs, in which all university groups are involved. This comprises continuing education and further training programs as well as the integration of student theses and projects.

7. EXTERNAL COOPERATION

Beyond cooperation at the university level, the BTU Cottbus seeks out local, regional and international collaborations with institutions from the political, media and industrial branches. In doing so, the region should be strengthened on the one hand, and on the other hand, ideas from elsewhere can contribute to future research and discussion. The BTU Cottbus is actively engaged in the process of the federal state's local agenda. We view the eastward expansion of the EU as a chance to support and accompany sustainable development processes.

8. CONTINUOUS IMPROVEMENT

Sustainable development is a continuous process at the university. This process will initially be realized through the formulation of concrete environmental objectives in the areas of procurement, existing facilities and buildings use, occupational safety and legal aspects. Furthermore, measures will be established and implemented for the realization of these objectives. New reports of the university's environmental aspects will be presented at regular time intervals. Thus the success of implementing respective measures can be reviewed, and based upon these reviews, new environmental objectives can be set. In this manner, a new cycle of improvement processes begins.

9. ORGANIZATIONAL STRUCTURE

For the continuous process of improvement, the university creates appropriate procedures, which serve to connect interdepartmental administration offices, research and teaching with one another. In this way, environmental protection becomes a collective task. The implemented procedures shall be based upon the appropriate, established BTU structures.

10. ENVIRONMENTAL STATEMENT

The environmental policy and environmental performance of the BTU Cottbus are presented to the public on a yearly basis in the form of an updated environmental statement. This comprises the core indicators of environmental performance as well as the environmental program of the BTU Cottbus.

ENVIRONMENTAL OBJECTIVES OF THE BTU COTTBUS FOR THE YEARS 2013 – 2015

On the basis of the internal environmental review and the generally positive development with respect to consumption data for the years 2010-2012, the following objectives have been set for the next three years (2013-2015) for the sites with environmental management (BTU Cottbus):

- reduction of per capita electricity consumption by 5 %,
- reduction of per capita heating consumption by 5 %,
- reduction of per capita CO₂ equivalents resulting from electricity and heat consumption by 20 %

The levels of water use and waste generation per capita are relatively low and should be maintained to the average levels of the years 2010-2012.

Attainment of the objectives for reduction is supported through measures laid out in the Environmental Program of the BTU Cottbus. Building renovations and technical actions are among the measures planned for the coming years, along with public awareness raising measures (see the Environmental Program of the BTU Cottbus).

THE ENVIRONMENTAL MANAGEMENT SYSTEM HANDBOOK OF THE BTU COTTBUS

All contacts related to occupational health and safety and environmental protection at the BTU Cottbus are listed in an Environmental Management System Handbook. Their individual areas of responsibility are listed, and information is provided on where to find the diverse guidelines and regulations relevant for occupational health and safety and environmental protection. This Environmental Management System Handbook is continually updated, and it is accessible for all BTU members via the Intranet.

THE ENVIRONMENTAL PROGRAM OF THE BTU COTTBUS

The following plan of measures for the years 2010-2015 includes activities that are planned, those currently being implemented, and those which have already been carried out for the achievement of the environmental objectives.

The activities were determined by means of the building checks from 2009, the internal environmental audits between 2011 and 2013, the suggestions from the ideas pool, and the 2009 online survey of BTU students and employees. They are organized according to the guidelines laid out in the Environmental Policy (the guidelines are listed with their corresponding measures).

With the goal of including and informing university members, the environmental management at the BTU Cottbus cooperated with the student council project “Health, Environment and Mobility” in 2012 to conduct an EMAS Ideas Competition. Here, 55 ideas from students and employees were collected, some of which were adopted within the Environmental Program and are marked in purple in the tables below.

The measures marked in blue were derived from the results of the 2012 and 2013 internal environmental audits, and those marked in green are either activities that have already been implemented, or they are continual activities. Measures that have been discontinued, declined or postponed for any reason are marked in gray.

Measure	Responsible department	Funding ⁶	Date of completion	Status
Guideline 1: Energy Efficiency				
Check possibilities of ventilation according to usage in lecture hall 1 and 2	VB 3		2016	pending
Put up signs for lecturers to turn off lights in lecture hall 1 and 2	UMK		2015	pending
Check usage of energy saving lighting in the hallways, toilets and for emergency lighting in lecture hall 1 and 2	VB 3		2015	pending
Check adjustment of brightness levels if the hallway lighting in LG 3E	VB 3		2016	pending
Check usage of energy saving lighting in the hallways, changing rooms and toilets of the gymnasium	VB 3		2016	pending
Check using waste separation systems in the hallways of the changing rooms in the gymnasium	USB		2015	pending
Renovation of LG 2C/D for heat conservation.	VB 3, VB 2	Detailed plan 012	2016	pending
Replacement of defect dual flush systems in lavatories of LG 2C/D as part of building renovations.	VB 3, VB 2	Detailed plan 012	2016	pending
Repairs to flooring in entryway to ZB LG 2C/D to eliminate slipperiness. Replacement of flooring in LG 2D as well, due to unpleasant odor.	FM	Detailed plan 012	2016	pending
Raise awareness among students and employees on heating in lavatories of LG 10 and LG 2C/D regarding windows being open at night.	UMK		2013 and continuously	Awareness campaign held in WS 2013/2014
Increase awareness on the use of PC power management, switching off PC monitors when not in use, and proper use of switchable power strips and shutting off lights.	UMK		2013 and continuously	Awareness campaign held in WS 2013/2014

⁶ Where no funding source is indicated, the current budget is sufficient and no additional funds are required.

Measure	Responsible department	Funding ⁶	Date of completion	Status
Clarify whether automatic lighting can be made possible in stairways of Panta Rhei by adjusting existent bus system's time series.	VB 3		2017	to be reviewed following acquisition of building by the BTU (end of 2016)
Clarify practicality of introducing motion sensors in LH 3D hallways.	VB 3		2015	To be reviewed with the construction of an annex to LH 3D
Clarify necessity of constant security lighting in bright lobby of ZHG during daylight hours.	SI		2013	Has been reviewed; security lighting has to be kept
Clarify possibility of automatic power down at 10 pm vs. 11 pm for lecture hall equipment in ZHG.	UMK, VB 3		2014	An adjustment of the temperature according to need is already in place. An earlier power down is currently not possible.

Measure	Responsible department	Funding	Date of completion	Status
Guideline 1: Energy Efficiency				
Utilization of energy savings potential via optimization of heating system in LH 3G (VTH).	VB 3	BTU Budget	2013	completed
Provision of switchable power strips in ZES, LG 2D, LG 10 and in reprography.	UMK	BTU Budget	2013	completed
Clarify feasibility of using excess heat from cluster rooms to heat buildings (e.g. HG).	Energy controlling		2013 and continuously	Not economical for existing buildings, but will be taken up for building modifications
Inform BTU administrators on the optimization (the increase, if possible) of temperature settings in cooled server rooms.	UMK, RZ and BDV		2015	Will be done in cooperation with RZ when the systems have been changed after the merger
Introduce continuing education course on environmentally conscious energy use.	Energy controlling		2015	Currently not possible due to lack of time
Review feasibility of energy efficiency regulators for heaters; thermostats with open-window sensors in public areas (e.g. ZHG seminar rooms) to be included in new tenders for building work.	VB 3		2013	Has been reviewed: possible, but high investment and danger of vandalism
Automatic close settings for GH doors to prevent energy loss.	VB 3	BTU Budget	2015	In implementation in line with the fire protection strengthening of the GH
Measures in the stone building of the central administration so that the floor would be less cold and to minimise frequent ventilation whilst heating.	VB 3	BTU Budget	2015	Construction measure planned for long term dependent on availability of funds; renovation of heating system; new heating distribution system with low water volume and two-circuit division

Measure	Responsible department	Funding	Date of completion	Status
Guideline 1: Energy Efficiency				
Compile economically feasible proposals for reducing electricity consumption in greenhouse within the context of a Civil Engineering/Architecture study project.	Chair of Soil Protection and Recultivation, VB 3	BTU Budget	2011	extended until 2016
Improvements to unsealed windows in LG 8.	VB 3	BTU Budget (BLB)	2011	no improvements made; building externalized → completed
Better insulation of the Großer Hörsaal.	VB 2, VB 3 (BLB)	Konjunkturprogr. II	2010	Completed
Clarify whether the dilapidated building materials laboratory should be renovated or externalized.	VB 2		2011	in progress: renovations of the electrical system realized in 2011; mid-term budget accounts for further renovations (structure, heating, lavatories)
Energetic optimization of the laboratory ventilation in LB 4B.	VB 3, (BLB)	Konjunkturprogr. II	2010/2011	completed: - ventilation system reconstructed and outfitted with heat recovery - water heating enhanced by one electric heater: district heating and power no longer needed beyond heating periods for building complex LG 4 A-C
Insulation of roof in LG 1A to reduce heat loss.	VB 3 (BLB)	Konjunkturprogr. II	2010	Completed
Reduction of heating output in LG 2A-B:			2010	
– through technical measures	VB 3	Konjunkturprogr. II		completed: - reconstruction of heating system in 2A-D completed - reduction of electricity consumption by 2/3 via high efficiency pumps - water heating enhanced by electric heating cartridge → during summer use (5 months) no district heating
- through conscious use	Faculty 2			Major awareness-raising campaign implemented in WS 13/14

Measure	Responsible department	Funding	Date of completion	Status
Guideline 1: Energy Efficiency				
Installation of a server pool and a cluster center for heating provision.	VB 3	BTU Budget	2010	completed: The cluster cooling was realized in 2010. The cooling system's exhaust heat should be distributed to the new energy center as a heating source.
Energy-efficient bulbs should be installed when lighting systems are refurbished or replaced; preference given to LEDs	VB 3	BTU Budget	Ongoing	in progress 2009 – Forum lighting was changed to LED 2011 – Mensa stairway lighting converted – general switch to LED when changing out emergency exit signs
Check where more appropriate hallway lighting is possible.	VB 3		Ongoing	in progress
Installation of thermostat locks to limit heating output.	VB 3	BTU Budget, Konjunkturprogr. II	2010	realized in LG 1A; further implementation denied due to low effectiveness
Examine to what extent bicycle parking possibilities can be improved.	VB 2 (BLB)		Ongoing	continuous project; has been implemented e.g. at IKMZ
Optimization of actual occupancy for lecture halls and seminar rooms.	VB 3.1.		Ongoing	continuous project
Solar Energy Research Field. Grid-integration of renewable energy and their use for electric mobility.	BLB	Konjunkturprogr. II	2010/11	in progress
Purchase peak load program for electricity consumption.	VB 3, LS Energieverteilung und Hochspannungstechnik		2014	in progress – new sensors have been installed in 2014 as part of an externally funded project. In 2015 the integration of measurement devices will be advertised
Renovation of LG 3B to reduce heat loss.	VB 2		2013	included within mid-term budget
Mounting of awareness-raising stickers in LG 10 (switch off the lights; close the windows; turn off the heating).	UMK	BTU Budget	2011	Implemented in major awareness-raising campaign in WS 13/14

Measure	Responsible department	Funding	Date of completion	Status
Guideline 1: Energy Efficiency				
Examine whether switchable power strips are in use everywhere; encourage members to use them.	UMK	BTU Budget	2011	done continuously in the context of internal environmental audits
Examine whether the motion and twilight sensors in LB 4B laboratories can be set to manual control.	FM		2011	checked and declined: the change from existent sensors and actuators would be too technically and financially demanding
Examine the increase in energy efficiency through intelligent control of technology in the lecture halls – temperature adjusted to actual occupancy.	VB 3, Dep. Lecture hall equipment			temperature adjustment realized; appropriate ventilation (air volume) dependent upon occupancy (CO ₂ regulation) to be checked during renewal of lecture hall equipment.
Repair entrance door in ZB VI (often remains slightly open in winter).	FM	BTU Budget	2012	completed
Hydraulic balance in LG 10.	VB 3	BTU Budget	2012	To be carried out when usage times of the building are settled
Restrain heating settings in LG 10 stairways.	VB 3	BTU Budget	2012	declined: preset thermostats are easily manipulated
Replace old wooden window frames still in use in LG 10.	VB 3, VB 2	BTU Budget	2013	cannot currently be realized for financial reasons
Examine whether a motion sensor in the mail room in LG 10 is advisable.	VB 3	BTU Budget	2013	pending
Replace old conventional ballasts in LG 10 hallway with new electronic ballasts, or review the possibility of LED use.	VB 3	BTU Budget	2012	As a large investment is required, this project will not be realized all at once; ballast replacement to occur during lighting overhaul.
Examine possibility of mounting decentralized lighting controls in the 5 th and 6 th floor offices of the IKMZ.	VB 3	BTU Budget	2013	not possible without great effort: central lighting control must be installed via EIB
Develop concept of measures for improving working conditions and energy efficiency in the IKMZ.	VB 3	BTU Budget	2013	fire protection review for establishing single offices is current basis for building alterations

Measure	Responsible department	Funding	Date of completion	Status
Guideline 1: Energy Efficiency				
Disassemble unused boiler in LG 3A after consulting with users.	VB 3	BTU Budget	2012	completed
Initiate small construction measure (e.g. entryway air locks) to reduce heat loss in the hallways of LG 3A.	VB 3	BTU Budget	2014	in progress
Enable decentralized settings for blinds in offices and laboratories in LH 3C (ground floor).	VB 3	BTU Budget	2014	project declined: the system in use does not allow for overlap of manual and central control
Provide impulse for improvements to bicycle lanes in the city of Cottbus.	Faculty 2 Dep. Controlling & Building		2011	continuous project
Guideline 1: Resource Conservation				
Reduce water consumption in LG 10 by repairing or renewing valves and mounting signage with tips for conserving water.	VB 3	BTU Budget	2010	water conservation tips compiled and distributed in 2010; plans for sinking water consumption through creation of central sanitary facilities → construction measures cancelled in favor of GH-sanitation
Utilization of waterless urinals when retrofitting and converting toilets, as far as economically feasible.	VB 3	BTU Budget	2013	project denied: availability of personnel does not allow for sufficiently hygienic operation (cleaning, disinfection)
Search for economically feasible solution for drinking water dispensers.	VB 3 Stura		2010	completed (in ZHG)
Cooperation with Studentenwerk concerning environmentally sound food offer in the Mensa.	Working Group Mensa		2011	organic food and fair trade coffee offered in the Mensa since 2011. Since 2013 vegan meals and cakes are offered.
Better public transport connections and optimization of available parking spots.	VB 2 (BLB)		2011	parking lot P4 completed in 2011
Examine possibility of a central ordering system for recycled paper.	VB 2		2012	implementation not possible for financial reasons; project declined at present
Reduce running time for water faucets in the 1 st floor of the Main Building (and other buildings where applicable).	VB 3		2013	completed (in Main Building)

Measure	Responsible department	Funding	Date of completion	Status
Guideline 1: Energy Efficiency				
Conception/establishment of a central return point for mobile phones, smartphones etc. at the BTU.	Student Council – GUM department		2014	Completed. Mobile phone box located at Stura
BTU commitment to waste prevention and separation in the Mensa.	ZUB		2013	in progress. In 2015 waste separation systems will be put up in the mensa foyer for test phase 2
Printing of BTU News and menus on environmentally friendly paper.	USB		2013	idea introduced to Mensa committee by USB; not necessary as menus are available via app and website
Use of reusable cups instead of disposable plastic cups in the cafeteria; elimination of plastic spoons.	USB		2013	Plastic spoons eliminated. Reusable cups currently not possible, it is planned to use FSC- disposable cups
Guideline 2: Procurement				
Development of a system for determining quantities of paper procured.	HöZ		2012	Currently not possible
Development of a calculation model to provide incentives for environmentally friendly purchasing.	HöZ		2010	not presently realizable; introduction of an incentive system for energy conservation in consideration instead
Change electricity provider with the goal of minimum 50% renewable energies, vs. the previous 20%.	K, VB 2	BTU Budget	2011	completed
Purchase of 100% green electricity (through participation in the federal state of Brandenburg's tender for "100% green electricity")	VB 2, VB 3	BTU Budget	2014	Completed since beginning of 2014
Preparation and distribution of instructions regarding new IT purchases for the chairs by data center and Chancellor.	UMK, RZ and BDV	BTU Budget	2013	Will be started after changing the systems by the RZ in line with the merger
Guideline 3: Resource-efficient Construction Measures				
Energy-related renovations in the FMFA.	VB 2, VB3, (BLB)	Konjunkturprogr. II	2012	completed
Examine to what extent the degree of surface sealing can be reduced.	VB 2		2010	ongoing: as little sealing as possible incorporated as a requirement in all building applications

Measure	Responsible department	Funding	Date of completion	Status
Guideline 4: Occupational Safety				
Offer one centrally organized occupational safety training for multipliers – for the department heads – on an annual basis.	Human Resources Department	BTU Budget	2012	One training will take place in September 2015. Separate smaller trainings of the leaders through the SI will be done continuously
Check whether the compilation and maintenance of operating instructions and hazardous material lists can be simplified.	SI		2012	A web-based software is in progress. Forms for risk assessments and risk cadasters have been put online.
Guideline 8: Continuous Improvement				
Ongoing public relations on the state of environmental management.	ZUB, UMK	BTU Budget	ongoing	ongoing
Specific appeals for water and energy savings.	UMK	BTU Budget	ongoing	ongoing
Hang informational posters on waste separation, environmental management and occupational safety throughout the buildings.	UMK, USB, SI	BTU Budget	2012	in progress: posters on appropriate waste separation in English and German mounted in various teaching buildings (LG 10, LB 4B, ZHG, LG 2A-2B, LG 2D) at beginning of 2012. Posters have been distributed in line with the awareness campaign WS 13/14
Post notices on changes to environmental protection and occupational safety regulations online.	UMK, USB, SI		ongoing	ongoing
Introduce new trash separation systems into the ateliers and conduct awareness raising campaigns to improve waste separation.	USB, Chairs, UMK	BTU Budget	2012	New waste bins are available. Awareness measures are in progress.
Publish consumption data for each building online to increase transparency.	UMK		2015	in progress
Inform users, e.g. in the ateliers, of the proper ventilation in the ateliers.	UMK	BTU Budget	Continuous	Large-scale awareness raising campaign implemented in WS 13/14
Provide more information on appropriate waste separation, e.g. newsletter.	USB, UMK	BTU Budget	2013	newsletter and flyer distributed in 2011; 2013 repeated + further measures

Guideline 9: Knowledge Transfer				
Networking and transparency measures for environmental research.	HöZ		ongoing	ongoing

Legend of abbreviations:

BDV	= Betriebliche Datenverarbeitung = Operational Data Processing
BLB	= Brandenburgischer Landesbetrieb für Liegenschaften und Bauen = Federal Agency for Properties and Building Brandenburg
Dep.	= Department
FMPA	= Forschungs- und Materialprüfanstalt = Institute for Materials Research and Testing
GUM	= Gesundheit, Umwelt und Mobilität (Referat des Studierendenrates) = Health, Environment and Mobility (student council project)
HG	= Hauptgebäude = Main Building
HöZ	= Humanökologisches Zentrum = Center of Human Ecology
LG	= Lehrgebäude = lecture building
LH	= Laborhalle = laboratory hall
LS	= Lehrstuhl = chair
MWFK	= Ministerium für Wissenschaft, Forschung und Kultur des Landes Brandenburg = Ministry for Science, Research and Culture Brandenburg
ÖPNV	= Öffentlicher Personennahverkehr = local public transport
RZ	= Rechenzentrum = Datacenter
SI	= Sicherheitsingenieur = Safety Officer
Stura	= Studierendenrat = Student Council
UMK	= Umweltmanagementkoordinatorin = Environmental Management Coordinator
USB	= Umweltschutzbeauftragte = Environmental Protection Officer
VB 2	= Finanzen und Innere Organisation = finances and internal organisation
VB 3	= Gebäudemanagement = Facility Management
ZUB	= Zentraler Umweltbeauftragter = Central Environmental Management Officer

FURTHER MEASURES AND ACTIVITIES 2011-2013

- The BTU Cottbus was the best-placed German university in the worldwide Greenmetric University Ranking 2011 (<http://greenmetric.ui.ac.id/id/page/ranking2011>).
- Since 2010, the Environmental Management System of the BTU Cottbus has been represented every year at the environmental market as part of the Cottbus Environment Week.
- As part of the Cottbus Environment Week, a bicycle-friendly environmental day took place on 2 May 2012 at the BTU Cottbus forum. This was organized by the student council project “Health, Environment and Mobility” with the theme: “Fresh air at the BTU!”. The theme of the Environment Day at the BTU Cottbus on 6 May 2013e was “Water is movement.” Together with the student environmental group UIKW (environmental information factory), information was provided on issues such as “virtual water.”
- Other measures
 - Forty bird houses for the Common Swift were mounted around laboratory hall 3C and the sports hall.
 - A new waste separation system was introduced in the IKMZ and construction materials laboratory.
 - Tips on ecologically sound purchasing, tailored to the BTU Cottbus, were posted on the Intranet – under Intranet/Formulare/Beschaffung.
 - The following informational campaigns were carried out: EMAS at the BTU for first semester students; Christmas campaign: environmentally friendly celebrating; campaign for energy conservation when using office equipment.
 - Student assignments on environmental management at the BTU Cottbus were composed for the subjects “Introduction to ERM” (ERM major), “Environmental

Planning” (City and Regional Planning major) and “Social Scientific Approach to Environmental Issues” (Land Use and Water Management, Culture and Technology majors).

- BTU Cottbus conducts CO₂ neutral shipping via DHL’s GOGREEN CO₂ Compensation Program.
- Five old, energy-intensive refrigerators used for research purposes were replaced by new, energy efficient class A++ appliances at the end of 2011. These were partly financed by the BTU budget.
- In the winter semester 2013/2014 an awareness campaign on the topic “saving energy in everyday life, at home and at university” was held. In almost all buildings of the central campus posters have been put up that intended to encourage students and employees to save energy. An energy savings book that contained information on simple, everyday energy saving measures was distributed. At the accompanying information events reminder stickers were distributed, which for example reminded the students and employees to turn off the lights or the computer when not in use, or to air the room for short periods of time intensely, instead of continuously leaving a window slightly open at home or at work.
- The environmental statement has been translated into English and is available online at the BTU homepage/ university life/ environmental management.
- The websites of the environmental management have been translated into English.
- The environmental management of the BTU Cottbus was represented again on the Market of Possibilities at the summer festival on the IKMZ hill in summer 2014
- In September 2014 the environmental management was represented at the annual introductory event for new students. Interested students could inform themselves about resource management and energy saving at the university and were told about student initiatives and projects at the university.
- in December 2014 the BTU Cottbus again took part in the Green Metric World University Ranking organized by the University Indonesia and achieved the 56th position among 360 participating universities. This is the university’s best ranking until now since the first time of participation in 2011.
- Starting in June 2015 students and employees can leave their suggestions, improvement ideas and criticisms in the EMAS- post box in the Campus Lounge on the ground floor of the mensa building.

APPENDIX

SELECTED RESEARCH PROJECTS OF ENVIRONMENTAL RELEVANCE AT THE BTU

Project title: CO₂ Exploitation, CO₂ Catalysis

Responsible party: Prof. Dr. Dieter Schmeißer

Chair of Applied Physics and Sensors, Faculty 1

Short description:

An important contribution to CO₂ reduction is the use of CO₂ as a raw material. With this project, the Chair for Applied Physics and Sensors aims to produce methane from carbon dioxide. At moderate temperatures of about 350°C, and with the addition of hydrogen, CO₂ can react to yield CH₄ (methane) via the Sabatier reaction $\text{CO}_2 + 4\text{H}_2 \rightarrow \text{CH}_4 + 2\text{H}_2\text{O}$. The special task of the Chair is to develop and test appropriate catalysts, which are, above all, affordable and which can be used in mass application. The catalysts' functioning is first tested on a laboratory scale, and then the potential for mass applicability is examined in a technical facility. The technical facility is scaled up in dimension by factor 10,000 as compared with the laboratory facility, thus enabling daily potential energy storage of approximately 2,000 kWh in the form of the energy source, methane. The qualitative effects of scaling up during the reaction process must be researched for industrial application. In doing so, the focus is placed on the thermal control of the exothermal reaction at moderate process temperatures of approx. 350°C, as well as on the long-term stability of the catalysts.

The CO₂ that is transferred to the energy carrier CH₄ (methane) by these means can be fed into the natural gas grid, for example. This approach is referred to as the "Power-to-Gas" program. The hydrogen, as a necessary energy supplier, is ideally derived from water electrolysis with electricity from renewable sources. With the saving of surplus renewable energy streams in the form of hydrogen, this process has the advantage of providing an additional use for the greenhouse gas CO₂.

The project is part of the network of undertakings known as GeoEnergie-Forschung (GeoEnergy-Research) – GeoEn, for which cooperations between universities, research institutions and corporations are supported by the Federal Ministry of Education and Research (BMBF) as part of the program "Spitzenforschung und Innovation in den Neuen Ländern" (advanced research and innovation in the new federal states).

Further information:

<http://www.geoen.de/>

Project title: Ecopay – a software tool to design ecologically effective and cost-effective payments for land use measures to conserve endangered species and habitats in pasturelands

Responsible party: Prof. Dr. Frank Wätzold

Chair of Economics, especially Environmental Economics, Faculty 4

Short description:

Intensified agriculture and its demand for marginal lands have led to a decline in biological diversity in Europe's agricultural landscape. In order to detain this decline, farmers are financially compensated, for example by participating in agri-environmental schemes, involving biodiversity-supporting – yet cost-intensive – land use practices. This compensation should be arranged in such a way that it is both ecologically effective (meaning that biodiversity conservation goals are met) and cost-efficient (meaning that available financial resources yield the highest possible level of biodiversity conservation).

Against this background, the Ecopay software was developed as a decision making tool within the framework of a DBU project. Ecopay serves to determine cost-efficient compensation payments for land use practices, which serve to protect endangered bird and butterfly species as well as habitat types in pasturelands. The software functions on the basis of ecological-economic modeling. Ecopay was developed for the federal states of Saxony and Schleswig-Holstein. The user can choose 15 different birds species, 15 different butterfly species and 7 different habitat types. Ecopay comprises hundreds of land use options in total (various mowing, cutting and grazing regimes). The software can be adjusted to changing ecological and economic conditions, and it is currently being adapted and expanded to other regional contexts.

Further information:

http://page.mi.fu-berlin.de/austurm/SokoBio/soko_bio_main.html

Project title: E-Mobility and Carsharing in Regensburg – Social Aspects of Sustainable Mobility

Responsible party: Prof. Dr. Karsten Weber, Prof. Dr. Sonja Haug

Chair of General Technical Sciences, Faculty 1, BTU Cottbus; Chair for Applied Social Sciences, HS Regensburg

Short description:

The goals of sustainable mobility include the reduction of emissions of air pollutants, the decrease of noise pollution, the protection of natural areas and landscapes, and the increase of urban quality of life. Hereby, all three pillars of sustainability are addressed. Within the scope of demand and problem oriented technology assessment research, the project was established against the background of the sustainable strategy of the Bavarian State Government, drawing a connection to demographic change in the region.

The central questions are: How can conditions for sustainable mobility be guaranteed for various target groups? Which transportation means are suitable for elderly and aged people, for commuters, for students, or for members of urban populations who either cannot afford an automobile or do not want one?

How can local public transport mesh with private transport (keyword: multimodal transport)? How is the situation specified for increasing population density in rural areas? How can the potentials of e-mobility and car sharing be evaluated for Regensburg and the region? Here, the linking of inner-city transportation with transport connections to rural areas plays a decisive role. Which approaches exist already, which future possibilities will experts identify?

Further information:

<http://www.iethik.de/doku.php?id=start>

Project title: Geocaching and Land Use

Responsible party: Prof. Dr. Karsten Weber

Chair of General Technical Sciences, Faculty 1

Short description:

Geocaching is a sort of Internet-based scavenger hunt, which takes place in the public realm. The sharp growth in participant numbers is accompanied by conflicts concerning private property as well as the use of public space, with pristine areas such as forests being especially affected. A new form of land use has evolved, as new technologies such as GPS have been taken up for use in leisure activities. This can be linked to widely untapped potentials for urban planning, regional management or education. At the same time, new conflicts regarding land use have come to light with the increased prevalence of Geocaching. In an explorative study, conflict situations and solution strategies are addressed on the basis of structured interviews with geocachers.

Further information:

K. Weber, S. Haug: Geocaching und Raumnutzung. Freizeitbeschäftigung mit Konfliktpotenzial (*Geocaching and land use. Free-time activity with potential to create conflict*). In: Standort - Zeitschrift für angewandte Geographie (*In: Journal for applied geography*), 36 (1) 2012

Project title: University Dialogue with the Islamic World 2012 – ‘Establishment of a Long Term University Cooperation and Dialogue in the Field of Voluntary Standard Systems – a Tool for Sustainable Production and Consumption’

Responsible party: Prof. Dr. Dr.h.c. (NMU Dnepropetrovsk) Michael Schmidt

Chair of Environmental Planning, Faculty 4

Short description:

In March 2013, the BTU established, together with the German Society for International Cooperation (GIZ), a three-year cooperation project with two Lebanese partner universities. The project is funded by DAAD. Together with the Lebanese American University (LAU) and the Université Saint – Esprit de Kaslik (USEK), research and exchange will be conducted on the topic of voluntary sustainability standards (VSS), as they apply to sustainable development, production and consumption.

VSS are systems, which primarily deal with the standardization of goods and services for the purpose of sustainable development. The role, function and societal and environmental influences of various VSS will be examined through mutual exchange between students, young scientists and professors, and through the collective development of curriculum materials and research projects. Within the scope of diverse activities, students from the ERM bachelors program and other young scientists from the BTU will deal with the BTU's EMAS certification.

The EMAS standard provides a suitable framework for students' exploration of the complexity of sustainable facilities management, with its extensive lists of interests and its breadth of possibilities for application and processes for continuous improvements in environmental management. The results will be subsequently presented to the Lebanese colleagues as a subject for discussion.

Further information:

Sophie Klose (Project Coordinator), E-mail: klosesop@tu-cottbus.de

Project title: KMU-innovative – Joint Project for Resource Efficiency: Li-WERT – Development of an innovative process for harmless disassembly and materials recycling of lithium-ion automobile batteries

Responsible party: Prof. Dr.-Ing. Habil. Peter, Ay

Chair for Processing Technology, Faculty 4

Short description:

Due to the fact that lithium-ion batteries have only been utilized for powering automobiles for a comparatively short period of time, there is nearly no recycling experience to speak of. Conventional battery recycling processes cannot be applied because of the variance in construction type and chemistry. For the joint project Li-WERT, BTU scientists, together with three mid-sized enterprises, are developing a process for lithium-ion traction batteries.

Special requirements must be considered for the transport and storage of worn-out batteries, for example measures must be taken to counter short-circuiting or electrolyte fluid streams. The container system developed for this project is mechanically stable, flexible to transport and constructed from unreactive material.

The Li-WERT processing concept is primarily based on the use of industrial robotics, which allows for the marked reduction of danger for operating personnel. The selective disassembly by robots and the customized treatment allow for extensive recovery of individual fractions. Following the opening of the casing and the subsequent total discharge, the batteries are disassembled down to the level of the single cell. Anodes, cathodes and separator layer are mechanically separated or treated by wet chemical means. The separated cathode coating – a mixture of cobalt, manganese and nickel – can be well transported, stored and processed in an agglomerated form.

All components are then transported to specialized recycling plants, leaving no left over materials, which must be disposed of. The Li-WERT process chain is modular in design and offers high flexibility. This also holds true for the introduction of new traction battery construction forms (e.g. for e-bikes).

Further information:

BMBF, FONA, Forschung für Nachhaltige Entwicklung (research for sustainable development), 2012, KMU-innovative project sheets, page 3-4:

http://www.fona.de/mediathek/pdf/KMUi_Projektblaetter.pdf

Project title: Environmental Monitoring in Chicken Creek Catchment

Responsible party: Prof. Dr. h.c. Reinhard F. Hüttl

Institute: Research Centre Landscape Development and Mining Landscapes (FZLB)

Short description:

Since September 2005, the development of the Chicken Creek catchment in the recultivation area of the Welzow-Süd mine in Lower Lausatia has been analyzed in the context of a comprehensive environmental monitoring. The area presents many possibilities for researching the initial phase of ecosystem development following a precisely defined starting point and enables interdisciplinary ecosystem research projects to be carried out. Anthropogenic intervention measures have not, and will not, influence the elapsing primary succession. Thus the ecosystem's self-organization, along with the associated structure and pattern formation can be observed in the terrestrial and aquatic subsystems.

On the approximately six-hectare area, an independent, local groundwater body has developed. This affords potential such as the chance to examine interactions between hydrologic, geomorphic and biological structural elements. Furthermore, a pond was able to form, allowing for research on the interactions between terrestrial and aquatic subsystems. Numerous ecosystemic parameters have been monitored in this setting since 2005, in order to document the meteorological, hydrologic and pedological development. Specific tests have also been conducted, which deal with the succession of flora and fauna, as well as with the pond development. The data is available for all associated research projects, and the results will be openly published in the series, Ecosystem Development.

Further information:

www.tu-cottbus.de/projekte/de/ecosystem/

SELECTED ACTIVITIES FROM STUDENT INITIATIVES AT THE BTU COTTBUS

The activities described here took place as part of various, individual projects. The main initiator of many of the events is the student group Umweltinfokraftwerk (UIKW) – environmental information factory – together with the student council project “Health, Environment and Mobility” (GUM). The UIKW is a group of volunteer students, who have made it their aim to organize free, environmentally relevant themed weeks for students as well as Cottbus residents.

Other initiatives have included environmental actions like bicycle flash mobs for the Environment Day in the city of Cottbus. Another environmental initiative at the university was the establishment of the Working Group Mensa (MensaAG). Here, the primary concern is the increase of organic and seasonal food on offer at the university canteen (Mensa). Discussions on a palm oil free Mensa and on the use of suitable reusable cups for the coffee machines have been initiated. As of now, 1-2 vegan meals are offered per week, including the soup offer.

The student bicycle workshop is a student council initiative. Together with some engaged volunteers, bicycles can be repaired on a donation basis. Students learn how to help themselves, as knowledge on bicycle repair is shared, versus a service simply being provided. Many international students are involved in the team as well.

ENVIRONMENTAL THEMED WEEKS ORGANIZED BY UIKW

23-27 April 2012 – theme: “Sustainable Development and Me”

Focus on one’s own contribution to sustainable economy.

Program contents:

Interactive exhibition on the theme of “ecological footprint” with information on CO₂ emissions arising from daily activities. Speech by Mr. Max Deml on green financial investments; film screening: “No Impact Man”; reading by Mr. Peter Unfried, Chief Reporter from the TAZ newspaper, from his book, “Lebe wild und emissionsfrei” (*live wild and free of emissions*) followed by discussion.

21-15 May 2012 – theme: “Sustainable Economy and Society”

Focus on the responsibility of the economy within the country and abroad.

Program content:

Speech by Mr. Kurt Damm from Transfaire on fairtrade accompanied by a fairtrade exhibition; speech by Mr. Jens Famula on the ecological business concept of DM; discussion on corporate responsibility for human rights, introduced by a speech by Mr. Mathias John from Amnesty International; Speech by Mrs. Ines Oehme on the theme of “planned obsolescence.”

18-22 June 2012 – theme: “Sustainable Economy and Nature”

Focus on the connection between economics and nature.

Program content:

Introduction of the project: “My Little Farm – a happy medium between meat eater and vegetarian” by Mr. Martin Buchmann; film screening: “Flow” on the theme of water as a luxury good and the threat stemming from this; exhibition “Water in Lausatia”; An experimental game led by UIKW on the theme of “Who does the forest belong to?”

12-16 November 2012 – theme: “Sustainable Living – self-made!”

Focus on sustainability in everyday life.

Program content:

Exhibition of info posters with useful and everyday environmental tips made by members of the UIKW; experimental game on the theme of “Wind park – but not in my backyard”; short film night with different sustainability themes; swap market for students.

14-25 January 2013 – theme: Palm oil – how the cheapest oil seduces the world” organized by Viviane Meyer

Program content:

Podium discussion “Palm oil – blessing or curse?” as introduction to the film “Cari Hutan/ In the search of forest”, self-made in Borneo by director Florian Augustin; multivision show “Culture and Conflict in Borneo” and accompanying exhibition, designed by Viviane Meyer; interactive city tour of “living palm oil free.”

22-26 April 2013 – theme: “The time after oil: transition towns”

Program content:

Film screening of “Voices of Transition”; speech by Thomas Finger from the Grüne Uni Berlin (green universities Berlin) on the theme of “transition towns and permaculture: projects in Berlin and Brandenburg”; podium discussion with Prof. Dr. Felix Ekardt on the theme of “transition town – the concept of the future.”

21-24 May 2013 – theme: “up cycle it: upgrading through recycling”

Program content:

Film screening of “Nie wieder Müll- Leben ohne Abfall” about the co-founder of the cradle-to-cradle concept, Michael Braungart; podium discussion with Tim Janßen and Nora Sophie Griefahn, co-founders of the association “cradle-to-cradle- Wiege zu Wiege e.V.” and the Berlin artist and economist Lars Zimmermann; presentation by Albin Kälin of EPEA Switzerland.

9-14 October 2013 – theme: “changing banks in the lecture hall”

Program content:

Information desk about investments by big banks that are inhuman and destroy the environment, including information material, giveaways, alternative banks; Film screening of “inside job”, a movie about the beginnings of the financial crisis from 2007.

9-14 October 2013 – theme: “designing the electricity market of the future”

Program content:

Presentation by Dr. Christian Hey, general secretary of the Sachverständigenrat für Umweltfragen der Bundesregierung (SRU) (German Advisory Council on the Environment), on the current special reports by the SRU due to current lignite debates in the region.

ADDITIONAL STUDENT ACTIVITIES AND INITIATIVES:

- The UIKW, the student council GUM project, and EMAS were represented at an info stand at the First Semester Info Day in winter semester 2012-2013 with informational material on a broad range of environmental aspects.
- An Environmental info night was organized in winter semester 2012/2013 by the student council GUM project to introduce the university’s environmental fields.
- A Christmas celebration party with vegan Christmas cookies was organised for students to promote sustainable eating habits and to inform of the student environmental groups at BTU.
- A barter market took place on 24 January 2013. People were invited to bring any functional objects and to trade these for other useful things. The activity was meant to inspire a critique of consumerism, an understanding of resource conservation and waste avoidance, and a heightened consciousness regarding our own material belongings.
- In cooperation with the Greenpeace group Cottbus, the UIKW organized a podium discussion on 11 April 2013 on the current theme of the iron ochre pollution of the Spree and sulphate immission with Dr. Lessmann (BTU Cottbus), Dr. Benthaus (LMBV), Mr. Kießling (Bündnis Klare Spree – *alliance for a clear Spree*) and Mr. Schuster (Grüne Liga, Environmental Group Cottbus)
- Presentation of the UIKW during the “evening of clubs” in Muggefug on 21st of November, 2013
- In early summer 2014 students inaugurated Gumno (lower Sorbian for garden) on the central campus. The garden is an opportunity for all members of the university as well as interested members of the public of Cottbus to learn, experiment and share their knowledge and information about sustainable agriculture.
- To protect native birds at the central campus from predators and environmental impacts, students of the student representation architecture have designed nesting box-

es in line with the “Stegreif Vogelhaus” (impromptu bird house) of the Chair Sculpture and Space. In correspondence with ornithologists the best nesting boxes were awarded and were placed at different sites at the central campus. Some of these are already occupied.

Gültigkeitserklärung

(Erklärung des Umweltgutachters)

Der
Umweltgutachter
Dipl.-Ing. Henning von Knobelsdorff
Mozartstraße 44
53115 Bonn

hat das Umweltmanagement-System, die Umweltbetriebsprüfung, ihre Ergebnisse, die
Umwelleistungen und die aktualisierte Umwelterklärung der Einrichtung

Brandenburgische Technische Universität Cottbus - Senftenberg

mit den Standorten
Platz der Deutschen Einheit 1
03046 Cottbus
und
Seestraße 45
15526 Bad Saarow
Reg. Nr. 134-00037

mit dem NACE Code 85.42 "Tertiärer Unterricht" auf Übereinstimmung mit der Verordnung (EG)
Nr. 1221/2009 des Europäischen Parlaments und des Rates vom 25. November 2009 über die
freiwillige Beteiligung von Organisationen an einem Gemeinschaftssystem für das
Umweltmanagement und die Umweltbetriebsprüfung (EMAS III) geprüft und die vorliegende
Umwelterklärung für gültig erklärt.

Es wird bestätigt, dass

- die Begutachtung und Validierung in voller Übereinstimmung mit den Anforderungen der
Verordnung (EG) Nr. 1221/2009 durchgeführt wurden,
- keine Belege für die Nichteinhaltung der geltenden Umweltvorschriften vorliegen,
- die Daten und Angaben der Umwelterklärung der o.b. Standorte mit ca. 1.100 Mitarbeitern
(davon 9 am Standort Bad Saarow) im begutachteten Bereich ein verlässliches, glaubhaftes und
wahrheitsgetreues Bild sämtlicher Tätigkeiten der Standorte innerhalb des in der
Umwelterklärung angegebenen Bereiches geben.

Die nächste konsolidierte Umwelterklärung wird der Registrierstelle spätestens bis zum 06. Juni
2016 vorgelegt. Im Jahr 2015 wird der Öffentlichkeit eine geprüfte aktualisierte Umwelterklärung
vorgelegt.

Bonn, den 09. Juni 2015



Henning von Knobelsdorff
Umweltgutachter
DE-V-0090



EMAS

**GEPRÜFTES
UMWELTMANAGEMENT**

DE-134-00037

Standorte

Zentralcampus Cottbus
Bad Saarow