

Project start: Climate reporting of SMEs

Seeing sustainability reporting as an opportunity

To strengthen non-financial reporting, in 2014, the EU Corporate Sustainability Reporting Directive (CSRD) was introduced and was transferred into German law with the approval of the CSR Directive Implementation Act. The current draft of the CSRD has an extended scope from 2024 and more stringent reporting obligations, which will also affect many SMEs.

The CSRD offers companies the opportunity to analyse and strategically realign their own management and production, for example, to be more circular and resource-efficient. Industry and trade increasingly expect to receive sustainability information on products from their suppliers, which means that this information can make an important contribution to corporate communication.



Successfully organising the sustainability information disclosure obligations in SMEs too

As part of the KliK collaborative project – “Climate reporting in SMEs”, together with the BF/M-Bayreuth and the University of Bayreuth, bifa examined existing frameworks in order to develop standardised, proactive data acquisition and measurement models, which are based on the needs and possibilities of SMEs. The project kick-off event was held in Bayreuth on 07 December 2022.

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Climate change adaptation in Ulm

KLUGA – sensor-supported internet of things (IoT) applications

The heat in Ulm is unbearable. Good that there is a new overview for the city: quickly check, in the Friedrichsau on the River Donau it is still pleasantly cool and also not so full. Only the UV radiation under the trees there is high. So put on plenty of lotion and off we go. But don't forget to quickly water the urban tree in front of the building beforehand. The sensor is already indicating deep red. But more water than last time so that the sensor in the deeper soil layer really does jump to green. A short detour is also necessary – the cycle path along the River Donau is still flooded after the heavy rainfall in recent days.



Climate change and adaptation to the associated changes are urgent topics in municipalities. In the project currently funded by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit), in the next one and a half years, bifa and the University of Ulm will be examining how the use of inexpensive sensors, e.g. for temperature, UV radiation or soil moisture can support adaptation to climate change in urban areas. Citizens will be involved in order to identify and implement useful applications for sensors.

area, with which climate-relevant data recorded by sensors can be transmitted.

After the kick-off meeting of the project partners in July 2022, the initial contact with Ulm's citizens was established on Green Parking Day on 17 September 2022. In the next step, interviews will be held with local stakeholders to examine possible further fields of application for sensors. The results of the interviews will then be further enhanced and consolidated within the scope of an online survey and ideas workshop.

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The practical partner is the City of Ulm, which since 2016, was one of the first three cities worldwide to have LoRaWAN (Long Range Wide-Area Network) coverage of its entire

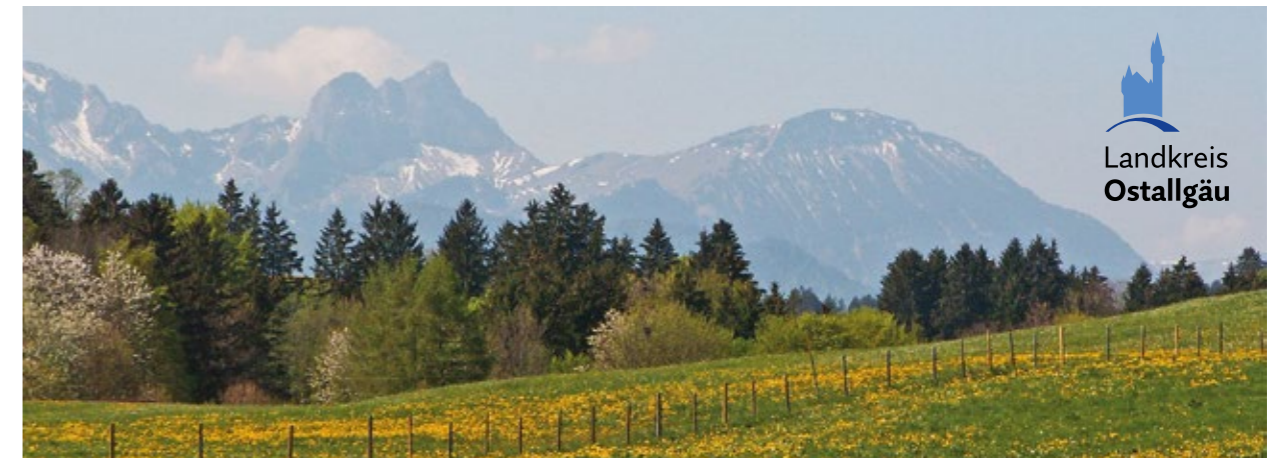


Newsletter der bifa Umweltinstitut GmbH



A new climate protection concept for Landkreis Ostallgäu

Working in close cooperation with the district administration, bifa headed the process to produce the new concept



The Landkreis Ostallgäu district would like to further strengthen its engagement in climate protection. It considers implementing climate protection within its own area of authority as well as getting the whole district to work towards the implementation as an essential and top priority task. This required a fundamental reformulation of the climate protection concept of 2012, which was no longer apposite.

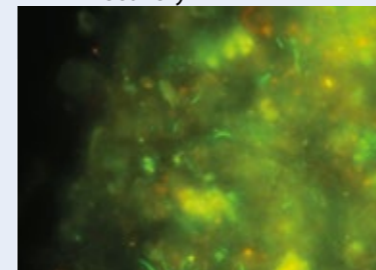
operation with the district administration, in 2021/2022, the bifa Umweltinstitut headed a moderated process to produce the new climate protection concept. The experts of the Landratsamt, the members of the climate advisory board as well as committed persons from organisations, associations, businesses and institutions contributed their proposals, views and expertise in workshops and focus groups. A positive vision for climate friendly living was developed and formulated, the climate protection targets were updated and a detailed action plan was produced.

The concept developed with bifa is an important step and at the same time it is the starting point for successful implementations within the district. Working in close co-



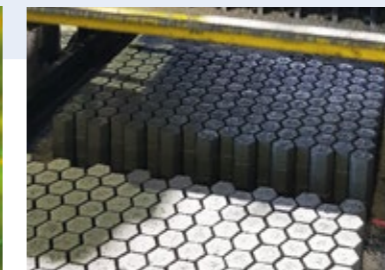
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KLUGA – sensor-supported internet of things (IoT) applications



Event on 08 March 2023

„Vision Possible – Strategies for waste avoidance today and tomorrow“



und im
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Cluster Bayern e.V.
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>> **Positive vision of climate friendly living in Landkreis Ostallgäu**

The positive vision for climate friendly living addresses work, mobility, housing, consumption and food, agriculture and forestry, the landscape/environment/nature, leisure and tourism as well as society. The texts are intended to initiate talks and discussions. Yes, they should also invite people to dream. What is the best future for our society? What could and should the future of our homeland look like? Unlike gloomy visions of the future, the positive vision can provide a boost, stimulate ideas and motivate people to act.

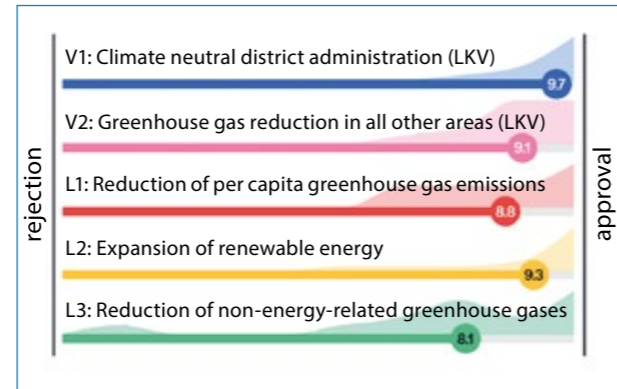
Climate protection goals

Climate protection goals enable us to focus on activities and measure successes. The targets differ between those for which the district administration is responsible for achieving the target and those in which its task is to work towards the targets being achieved within the district. The adopted targets included climate-neutral administration of the district within its whole area of influence by 2030, reduction of the energy-related per capita greenhouse gas emissions, expansion of renewable energy in the power and heat sector and reducing the non-energy-related greenhouse gas emissions with the goal of achieving climate neutrality.

Production of an action plan

Measures for achieving the climate protection goals in Ostallgäu should be effective for climate protection, practical and able to be implemented effectively, and should lie within the decision-making sphere or area of influence of

Example of an interim rating (in percent) of the development of climate protection goals:



the district. In an intensive coordination process, a package of 32 individual measures was developed. The areas of action covered by these measures are organisation, PR and education, buildings and housing, energy generation, mobility and travel, commerce and industry, public utilities, consumption, nature and the environment as well as agriculture and forestry.

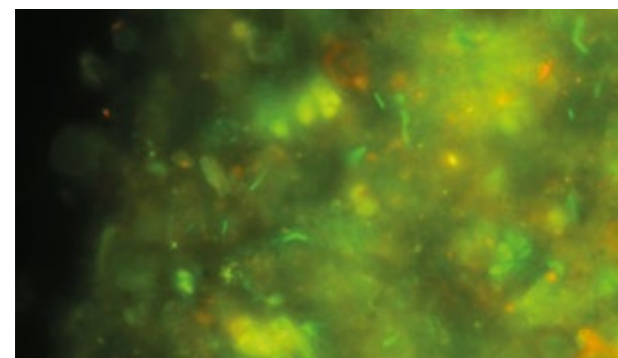
The new climate protection concept was adopted by the district assembly in its submitted form. It is published on the district's website. It will provide clear guidelines for the districts climate protection activities in the coming years.

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Project start: Eco-PIK

Eco-efficient process-integrated sewage sludge recovery

In the collaborative project involving Augsburg University of Applied Sciences, Blue Energy Europe GmbH and bifa Umweltinstitut, the objective is to implement a concept for the "combination of sewage sludge gasification with biological methanation in situ in anaerobic fermentation and subsequent use in a flexible microgas turbine process".



Digested sludge in the fluorescence microscope: green luminous methane-forming bacteria

The overall objective of the project is to look at the energetic use of sewage sludge as a biogenic recycling material in its entirety, specifically for wastewater treatment plants with 50,000–300,000 PE and to develop a new type of recycling process. The collaborative aims to develop and validate an ecologically and economically advantageous project, which is integrated in the wastewater treatment plant (WWTP) process on site and therefore uses various synergy effects.

The following subprocesses are planned for the ecoefficient sewage sludge recycling integrated in the wastewater treatment plant process (Eco-PIK):

- A) thermochemical gasification of sewage sludge (assigned to: Blue Energy Europe GmbH)
- B) biological in-situ methanation in anaerobic fermentation (assigned to: bifa Umweltinstitut GmbH)
- C) more flexible microgas turbine process with combined heat and power generation (assigned to: Augsburg University of Applied Sciences)



>> The material and energy streams of the subprocesses will be coordinated with each other and with the WWTP process for an energetically and economically optimised overall process. The overall process and process variants will be evaluated on the basis of the research results with regard to their energy efficiency, economy and influence on climate change (ecoeficiency analysis). www.energetische-biomassenutzung.de

In the subproject worked on by bifa, the biological exploitability of the products (gases, oils) produced during the sewage sludge gasification by microorganisms in the

digester will be examined. The aim is to achieve the most extensive biomethanation of the products possible and methane enrichment of the biogas. In addition, based on the results of the subprojects, bifa will produce a life cycle assessment of the effects on the ecoeficiency of the sewage sludge recycling.

Gefördert durch:



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Resource protection, substitution and digitalisation through foundry gas recycling

Start of a new research project in the ForCYCLE Technikum project group

In the previous project, dust was analysed, classified and material streams were digitalised for four Bavarian foundries. The objective was to define recycling options for the dust so that it can be added back into the material cycle to achieve sustainability.

The intention of the new project is to incorporate foundry dust in secondary resources and thus reuse it. Working with GPS SIC Keßl GmbH u. Co. KG, recipes for pellets are to be optimised with regard to their composition, CO₂ balance and resource efficiency and scaled to the "Technikum" (technical centre) scale. It is also intended to optimise the material stream management. Waste materials from foundry processes can then be provided for reuse and valuable primary resources can be saved.

Closing recyclable material cycles in Bavaria

According to calculations, with the process, dust in the order of quantity of several hundred tonnes can be recycled. With the project, the precise mapping of the dust, its classification, digitalisation and laboratory tests started in ForCYCLE II will be transferred to the Technikum scale. Together with the Franken-Guss foundry, the intention is



to develop systematic recipe variants for different pellets from the digitalised dust data.

The collaborative project is being funded by the Bavarian State Ministry of the Environment and Consumer Protection (Bayerischen Staatsministerium für Umwelt und Verbraucherschutz) and coordinated by the Bavarian Resource Efficiency Centre (Ressourceneffizienz-Zentrum Bayern, REZ) of the Bavarian State Environmental Agency (Landesamt für Umwelt).

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