

ACHIEVING SUSTAINABLE USE OF ENERGY IN AN ACADEMIC OFFICE ENVIRONMENT BY MEANS OF MIXED-TYPE INTERVENTIONS

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Energy waste is one of the driving forces of climate change. In addition, the expenses for resources like electricity, energy for heating/cooling, and water are increasing, challenging many public institutions, including the University of Freiburg. However, the efficient use of energy has to be accomplished without imposing strict restrictions on employees or lowering the level of convenience in the offices too far. For selected buildings of the University of Freiburg, the “Working Group Sustainable University” addresses this problem. As a bonus, project participants are allowed to make free use of 100% of the money they save compared to the 2003-05 mean values.

In this paper, we focus on one of the pilot institutions, the Institute for Psychology, which has made considerable effort to reduce energy consumption. However, this is still work in progress.

In our project, several approaches have been used and proven to be successful: At the outset, a model of energy consumption was established. This model served to identify areas which consume a lot of electrical power; and it also helped to identify and assess the effects of interventions with the help of simulations. The IT infrastructure turned out to be one of the most prominent areas to save energy as it accounted for approx. 60 % of the institute’s total electrical power consumption prior to our intervention. Today, only some 10 PCs are operated around the clock which represents a reduction by 90 %. It should also be noted that power consumption is an important factor to consider in the acquisition of new technical equipment. For example, by taking into account power consumption a cheap PC or printer may turn into an expensive one after some months. Further, adjusting the timers and preset profiles of the technical equipment resulted in considerable savings, e.g. by switching off the lecture hall heating during term breaks. Changing the behavior of the people using the buildings was another major focus of the project. Numerous types of interventions (e.g. emails, WWW, hints, FAQs, prompts, posters, multi-media) with the aim to inform users about energy saving options were implemented and evaluated. The project is heavily supported by the staff and students. For example, removing the PCs from power after shutting them down, in order to avoid standby power consumption, is now common practice.

As a preliminary result of our interventions at the Institute for Psychology, we were able to reduce electrical power consumption by approx. 25%. Even taking into account the high temperatures during the last winter, a saving of 30% of energy for heating was achieved.