Towards an energy neutral campus for the Open Universiteit, Heerlen. (in Dutch)

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Abstract

Climate change and resource scarcity lead to policies on different levels to reduce the use of fossil fuels. In this context the Open Universiteit (OU) wants to explore how to become an emission-free university. Together with Mijnwater B.V. that is planning an 'energy greenhouse' on the campus, OU wants to explore the possibilities to reach a state of energy neutrality. This report formulates a possible strategy to realize this ambition. A frontrunner and network analysis yielded insights on strategies amongst successful (inter)national projects and Dutch higher education institutes (the last using a survey in Qualtrics and statistical analyses using Mann-Whitney-U) which were compared with input from two expert interviews. Research on possibilities for energy saving and renewable production on-site was based on data from OU and literature. A search for suitable software tools to support the process completed the study. The results show that energy neutrality is realistic through an integrated, generally accepted and supported policy approach taking decisions on value on social, economic and real estate aspects and fostering for a link between regional developments and the primary process. The saving potential results mainly from improving insulation. Next health and ecological aspects can benefit from reduction techniques. The remaining energy demand can be produced renewable using mainly hybrid solar panels (electricity and heat), the 'energy greenhouse' complemented by innovative techniques. Combining both potentials can lead to energy neutrality. Continuous monitoring of the process is a prerequisite. EnergyPlus, RETScreen and PriEsT are promising tools to support the process.