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Integrative energy-water audits in public buildings

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Abstract. Buildings evidence potential water and energy savings of about 30-50% and 50%, respectively, accompanied by the consequent reductions on greenhouse gas emissions (GEE). Comparatively to energy efficiency, water efficiency still lacks well defined structural strategies to improve building resilience to climate change within the European territory, including water scarcity, such as the identification of improvement measures and the required investment solutions for the installation of water efficient products and equipment. In addition, the water and energy nexus should be addressed more extensively.

The Coleopter project (2019-2022), co-funded by the Interreg Sudoe European Program, encompasses the general objective of contributing to better energy efficiency policies in public administration buildings. The paper focuses on the importance of conducting integrated energy-water auditing approaches in public buildings, with a new comprehensive auditing scheme developed and tested at a workshop, to be further validated in four demonstrator buildings.

Keywords: water efficiency, energy efficiency, water-energy nexus, energy-water audits, territorial dialogue.

Bridging the water-energy nexus in public administration building auditing approaches

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Abstract. Urbanised areas are sensitive places where water restraints and floods may occur on a regular basis as a result of climate change. Buildings, where people may spend about 90% of their daily time, are required to be wisely managed and show resilience. The design and management of building resilience to climate change should, therefore, consider water and energy auditing and regular monitoring to assess efficiency of use and periodic inquiries to assess users' behaviour. Public buildings can be extensively used to disseminate low carbon practices and undergo water and energy audits. The Coleopter project (2019-2022), co-funded by the Interreg Sudoe European Union program, proposes and develops a new approach, including the social dimension combined with technical and technological features, for public building renovation. Building information modelling (BIM) is used for 3D modelling, allowing collaborative work and water-energy simulation in public buildings.

Keywords: water-energy nexus; water and energy audits; building information modelling (BIM).