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Evaluation of energy conservation opportunities through Energy Performance Contracting: a case study in Italy

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Highlights

- ✚ An energy audit was performed on 5 healthcare buildings.
- ✚ Current energy consumption and possible retrofit solutions were evaluated.
- ✚ The global retrofit of hospitals allows savings of between 77-79% for natural gas.
- ✚ The retrofit of clinics allows savings of between 34-47% for heating and 32-47% for electricity.
- ✚ Payback periods (PBP) of energy retrofitting are between 9 and 20 years.

Abstract

Non-residential buildings like healthcare ones contribute to energy consumption and cause a negative environmental impact. This is mainly due to the age of the buildings, their poor level of energy efficiency and the implementation of only a basic maintenance plan. Owing to the very limited budget available for public administrators, Energy Performance Contracting (EPC), that entails the involvement of an Energy Service Company (ESCO), can provide the entire or part of the capital needed for investments aimed at progressively increasing energy efficiency over their service life. In this paper, three acute hospitals and two community clinics built in Italy are analysed, in order to assess the economic feasibility of several energy renovation actions that can be included within EPC contracts. To this purpose, the outcomes of energy audits carried out in 2014 about these buildings are reported, which involved analyses of consumption measured over the previous three years and assessment of use profiles for the development of models to

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