SOLAR THERMAL ENERGY STORAGE IN BIOMASS-BASED PCMS AND THEIR ROLE IN ACHIEVING THE SDGS: HOLISTIC ANALYSIS.

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A line of action of utmost importance for the achievement of the Sustainable Development Goals is the successful implementation of an energy transition from fossil fuels to the use of renewable energies (Wiese, 2016). In this sense, the development, massification and impact measurement of solar thermal energy systems have an important role to play by making use of the largest energy source available today. Although much research reports the favourable impact of the use of solar thermal energy, it is mostly focused on a technical analysis based on the decrease of CO2 emissions, the money savings derived from the technology, the reduced dependence on other fuels, among others (Crespo et al., 2019). Few researches discuss cross-cutting aspects derived from the implementation of solar thermal energy such as the development of sustainable communities, the impact on decent work and other positive contributions to different sustainable development goals. Considering the current importance of integrating the Sustainable Development Goals as a way to accelerate the achievement of the goals (Santoyo-Castelazo & Azapagic, 2014), this paper presents a qualitative analysis of the positive impacts of the development and implementation of biomass-based solar thermal energy latent storage systems on 10 of the 17 Sustainable Development Goals. The contribution to the diversification of agro-industrial production chains is highlighted, especially those related to vegetable fats and oils, from which materials for heat storage can be obtained, directly impacting objectives such as non-poverty and decent work and economic growth. Finally, it is concluded that it is necessary to establish measurement parameters to quantify the impact of this type of technologies for the use of solar thermal energy, considering a holistic vision of the 17 sustainable development goals. These activities were funded by The Royal Society through the ICA\R1\19120 LA-SOLAR ENHANCED project.

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