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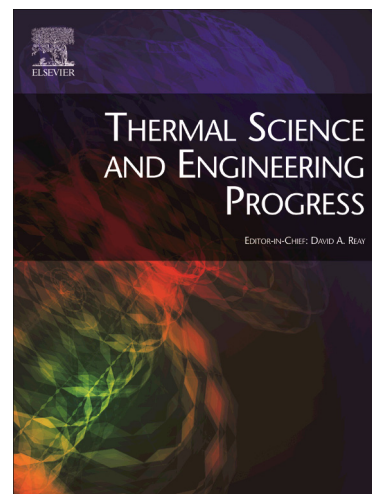
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Smart Cities – Thermal Networks for London

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ABSTRACT

This paper presents a feasibility study of the technical and economic viability of introducing combined heating and cooling networks in London, referred to collectively in this paper as “thermal networks”.

The study begins with a review of the current and potential future demographic and energy trends for London. This is followed with detailed energy analysis of three different thermal network configurations to identify the most viable thermal network configuration for London. Future projection analysis was also carried based on a number of potential building mix scenarios.

The study revealed that by using thermal network with heat recovery produced significant energy savings and subsequent carbon savings by upto 56 %. The majority of the energy saving and equivalent CO₂ emission savings resulted from the reduction of the heating energy required to cater for the loads due the viability of heat recovery from the cooling network into the return of the heating network. The study also revealed that by utilising thermal networks, with central energy centre approximately 1831 tonnes of CO₂ equivalent could be saved per annum compared to traditional supply methods. With a minimum assumed system life of 25 years this equates to approximately 46000 tonnes CO₂.

Keywords: Thermal networks, Combined Energy, *Combined heating and cooling.*

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