

Building Heating Consumptions under Present and Future Climate Scenarios



Dr. Feifei Sun
NPS Humber Ltd. Earle House, Colonial Street, Hull, UK, HU2 8JY
Email: feifei.sun@nps.co.uk

Dr. Behzad Sodagar
School of Architecture, University of Lincoln, Lincoln, UK, LN6 7TS
Email: bsodagar@lincoln.ac.uk

John Bell
NPS Humber Ltd. Earle House, Colonial Street, Hull, UK, HU2 8JY
Email: john.bell@nps.co.uk



This paper presents the analyses of climate by examining the influence of weather patterns and climate change on heating demands of large building portfolios. It investigates 12 years of historic weather data and the corresponding heating consumptions of corporate and office buildings owned and managed by Hull City Council in the UK in order to establish the correlation between heating consumptions and weather patterns. Further, the established heating consumptions trend is compared against different climate change scenarios reported in literature. In addition, the most relevant climate projection scenario is identified and discussed. The methodology presented in this paper is valuable in demonstrating climate influenced heating consumptions for large organisations, which in turn can be used for monitoring and managing energy consumptions and CO₂ emissions. The research is based on a two year collaborative externally funded research project.

Keywords: climate change, space heating, carbon emissions.