

Topic I: Sustainable Housing and Construction in Europe
(submitted for presentation)

Title: Determining the Carbon Footprint from Housing and Associated Lifestyles in the UK – a Quantitative Approach Combining Geo-Demographic Marketing and Macro-Economic Data

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Extended Abstract

A major part of greenhouse gas emissions (GHG) in Europe are directly or indirectly associated with housing. The EIPRO study (Tukker et al., 2006) suggests that housing related GHG emissions make 23% of all consumption related GHG emissions in Europe even though studies also indicate that this figure can fluctuate across member states considerably (e.g. SEI et al., 2006, Nijdam and Wilting, 2003). Many governments in Europe have, therefore, started setting energy efficiency standards for new buildings and appliances. However, without a targeted approach for retro-fitting existing homes, these efforts might not be sufficient to make an important contribution to European climate change targets. Moreover, apart from efficiency parameters of the housing stock and associated reduction potentials, it is the lifestyle of the people living in the properties, which determines energy use and carbon output of the dwelling.

Currently Stockholm Environment Institute (SEI) and partner are developing a novel model for estimating the direct and indirect carbon emissions from housing in the UK and the wider lifestyle of residents. Geo-demographic marketing data from the MOSAIC database (>400 variables) is used to describe the properties of dwellings such as age, size, type of windows etc. as well as preferences and socio-demographic characteristics of the residents. This information is combined with data on the energy-saving equipment of the existing housing stock from the HED database and post-code specific figures on the energy-use in dwellings. Using carbon intensities from a multi-regional input-output model the carbon footprint can then be established for very small spatial entities.

Such a geo-demographic model has a variety of applications for private businesses seeking, for example, to target new customers for their energy or carbon efficient products (e.g. insulation, triple glazed windows, green energy tariffs etc.) as well as for national, regional and local government to identify the most efficient and socially just policies for reducing carbon emissions from housing and to influence peoples' lifestyles. Finally, we show how survey data on the peoples' attitudes towards the environment can be used for a further customisation of lifestyle policies.

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