

Urban form and transport study questions UK climate policy

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New research throws uncomfortable light on the British government's plans to tackle climate change.

The programme of action unveiled last week by Ed Milliband, the Minister for Energy and Climate, claims that greenhouse gas emissions will be reduced by 20 per cent by 2020 as part of the overall plan to cut UK carbon 80 per cent by 2050. But new research funded by EPSRC, called SOLUTIONS (Sustainability Of Land Use and Transport In Outer NeighbourhoodS) shows this to be highly unlikely, if not misleading.

The £1.5 million SOLUTIONS project, which spanned five years and combined the expertise of five universities: Cambridge, Leeds, Newcastle, West of England and UCL, found that far from cutting transport carbon emissions, current government policies will lead almost inevitably to a significant increase.

SOLUTIONS' strategic-level research involved modelling land use and transport futures up to 2031 in two contrasting parts of England - London and the greater South East and the city regions in Tyne and Wear in the North East. Current RSS, LDF and Transport policies were incorporated. The results from these models showed that total carbon dioxide emissions could increase by 34 per cent in the South East and 10 per cent in Tyne and Wear casting serious doubt on Milliband's promises.

The most alarming conclusion is that even if strategic land use transport policies are changed significantly - i.e. much more compact or dispersed than at present - and congestion charges are imposed across all the major cities, the result is broadly the same: total carbon dioxide emissions will continue to increase.

"The reason for the ongoing increase in carbon emissions is simple," said Marcial Echenique, SOLUTIONS research leader and professor of Architecture at the University of Cambridge. "The momentum of social and economic change is such that it overwhelms any benefits that might be gained from extra investment in public transport or a better balance between employment and housing. New solutions must be adopted."

The second major conclusion concerned housing supply and demand. In the London and greater South East region at least (accounting for over a third of the UK population), the research strongly backs the Kate Barker Treasury review (2004) that strict containment of our cities is curtailing housing supply, at a significant economic, social and environmental cost. The over-reliance on brownfield development, often in the form of flats, together with greenbelts that constrict urban growth and squeeze development into inappropriate locations, forces up housing prices, exacerbates social exclusion, increases travel distance and reduces competitiveness. The strong recommendation from SOLUTIONS is to find ways (even in the current recession) to open up new options for housing supply.

"Letting cities expand is essential if middle and low income families are to achieve their dreams of houses with gardens and firms are not to be burdened by unnecessary wage costs," said Professor Echenique. "But this is not a plea for sprawl. It is an argument for planned expansion and for new 21st century suburbs that are well located and well-designed."

Results drawn from SOLUTIONS local level research, involving empirical analysis of local facilities and household travel in twelve suburban neighbourhoods, were also salutary. The studies showed that most recent developments, far from being an improvement on older localities, showed the most carbon-intensive behaviour. The level of car dependence for 'local' trips was 80 per cent in some neighbourhoods, while others, older but socially quite similar, were only 40 per cent car dependent. This has some (modest) implications for emissions, but huge implications for the level of physical activity. This suggests we are creating 'obesogenic' environments.

It was also clear that the nature of intensification in suburbs is unpredictable: high density brownfield development is occurring not only close to local centres and good public transport but also in less accessible locations, forcing high car ownership and use. The signals given by government to local authorities and house builders are often resulting, despite good intentions, in unsustainable development.

Thankfully not all the results from SOLUTIONS research were negative. In growth areas where alternative neighbourhood designs were explored the most successful forms - often based on local high streets and graded densities - gave the opportunity for very high levels of active travel (walking and cycling to get somewhere) and commensurately low innate car dependence. The results suggest walkable and viable places can be created and that people will take the opportunity to walk in these localities.

"While there are clear differences in behaviour between different groups in the population, the dominant factor determining whether people walk or not is distance," said Professor Hugh Barton, the design lead at the University of the West of England. "If we can build and evolve places that really create attractive, accessible, safe environments, then people will walk and will contribute to reducing carbon emissions from transport."

Nevertheless, the overall message from SOLUTIONS holds little comfort. Strategic and local trends are moving in the wrong direction, despite government policy and recent promises. No feasible shift of broad land use and transport policy will correct the trend, at least over the next twenty years. But on the positive side, we can adapt neighbourhoods, where there is development pressure, to be progressively more efficient and much less carbon hungry.

"If we are to have any hope of achieving the government's targets, dynamic action must be taken; firstly, in relation to land use and transport but also on other fronts as well." said Professor Barton. "There must be a technological revolution in transport, much firmer fiscal signals to businesses and households and crucially a huge shift in public values. Only by choosing to lead lower carbon lifestyles can we hope to reduce carbon emissions."