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Commission on Travel Demand

Dear Greg

We said we'd write to set out the main issues relating to Travel Demand that are of interest to our work at the CCC.

As you know, much of our work concerns advice on setting carbon budgets and monitoring progress reducing emissions. This means our interests lie in looking at trends in demand, monitoring drivers and thinking about future changes – what might demand look like in the future and why. Our advice on emissions trajectories is against the requirement in the Climate Change Act for overall emissions to be reduced at least 80% on 1990 levels in 2050. This note sets out four key areas of interest to us in this context:

1. Forecasting transport demand
2. Drivers of demand
3. Types of demand and reasons for trips
4. New sources of demand

1. Forecasting transport demand

Projections of future travel demand are an important starting point for our advice on setting carbon budgets. We therefore need to know about different potential future scenarios of demand and associated risks and uncertainties. As we rely on the DfT National Transport Model for baseline projections, we need to be able to understand the basis for developing particular scenarios and the justification for their 'central' scenario, as well as understanding the range of possible futures.

More generally, we're also interested in how to capture social trends and lifestyle changes such as internet shopping or increased home working. The higher concentration of people living in urban areas could also affect how and why people travel.

Whilst the NTM uses car ownership as the basis for forecasting demand, it would also be interesting to consider alternative models. For example the starting point could be on trip patterns, rates and purpose and how these might change across modes and different groups going forward.

Projections are always uncertain and carbon budgets need to deal with all kinds of uncertainty, not just in demand. We would be particularly interested to see new approaches to take account of future uncertainty, how this affects our trajectories to meeting legislated emissions targets and what this implies for developing 'no regrets' options.

2. Drivers of demand

Monitoring underlying drivers of transport demand is a key area for our progress reports. The main drivers we look at are income (GDP, manufacturing output) and costs (fuel prices and fixed costs). Comparing the impact of those drivers with out-turn demand for the same period does not always give results that we might expect, and this has raised a number of issues for us:

- Are the elasticities underpinning the models "right" and how do these compare against external research?
- Are they sufficiently disaggregated (e.g. by age, region) to be useful as a forecasting tool?
- Are they consistent over time, if not, what lessons do we learn from past changes?

Another issue around drivers is whether the modelling fully represents interactions between different types of demand, and whether these interactions are well understood. For example, are the cross-elasticities of demand robust and do they take account of all the potential considerations people make when deciding on one mode over another? This would include things that are potentially difficult to quantify such as public transport wait times and reliability, congestion, cycle path availability and steepness of routes, which vary significantly across the country. What is the potential for the models we use, if they do not take account of the wide variation of factors, to over- or under-estimate car demand?

3. Demand types

The data collected in the National Travel Survey provide detailed information on trips by age, region, income group, mode and purpose. It would be useful to consider other key factors that might develop a richer picture of demand. For example, it would be interesting to see whether additional information on factors such as household type, employment status and information on public transport services by region are also important to incorporate in models.

The NTS shows that trip rates have fallen to an all-time low in 2015, and have been falling steadily since they were first measured in 1995/97. The issue of peak car has been cited as one possible explanation for this, but there could be others. Until we have a good handle on this, it remains a risk in our forecasts and an area where further work would be useful.

Our abatement options not only rely on new low carbon technologies being taken up, but also some reduction in demand and modal shift to public transport and active choices. In developing our scenarios, it has been difficult to find good evidence on what works in terms of incentivising modal shift. While infrastructure and local planning plays a role, these do not provide sufficient explanation for the differences across regions. Research and other evidence, perhaps drawing on behavioural literature, might be useful resources to explore.

An issue CCC has highlighted in recent progress reports is the strong rise in LGV demand and trips. We have done some work in trying to explain this through the rise in internet shopping and possible impacts of changes in regulations around HGVs, such as the more stringent licensing and operating conditions introduced in September 2009. However it's not clear whether these factors fully account for the observed trends, and further work in this area would be helpful.

The data on HGV trips and demand is less detailed, timely and reliable than that for cars and vans, and this affects our understanding of trends and drivers. Whilst low-carbon technologies are key to decarbonising this sector in the longer term, short to medium-term options cover reducing HGV tonne-kms. We have done some work on this, but a better understanding of how to achieve this, e.g. through more efficient routing, consolidation centres, last-mile deliveries, freight to rail options would help to develop our advice in this area.

4. New sources of demand

As well as thinking about current drivers of demand, we need to consider the impact of potentially bigger shifts in social and economic trends that might lead to new sources of demand and travel patterns. These could include:

- Autonomous and connected vehicles – how do we develop scenarios to take these into account?
- The impact of large infrastructure projects – HS2, 3rd Heathrow runway, Cross-Rail, plans from Transport for the North?
- The sharing economy – effects of increased car sharing, uber pool and car clubs?
- Road pricing and congestion charging including charging in clean air zones?
- Brexit impacts – how might this impact international freight?

If we could understand the dynamics of these and how long it takes for these effects to filter into functions that can be used in forecasting, or scenario building, that would be a big step forward. There is a link here to uncertainties raised earlier. For us, it will be important to consider how uncertainties in future demands affect the advice we should be giving now, for carbon budgets consistent with the long-term 2050 target.

We hope this helps in steering the important work your Commission doing and we look forward to working with you going forward.

Yours sincerely,



Adrian Gault

Chief Economist, Committee on Climate Change