Joint Committee on Environment and Climate Action

Meeting of Tuesday, 13th July 2021

Opening statement

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- I thank the Committee for the invitation to speak on the matter of meeting our 2030 target in relation to reducing transport emissions. I commend the committee on its report on the topic published last month.

- I am a lecturer in energy systems modelling in UCC and I lead research and model development within the MaREI Centre. Most recently I have been leading the development of the new TIMES-Ireland Energy Systems Model and supporting the Climate Change Advisory Council on carbon budget deliberations. I also have expertise in transport energy modelling. I wish to highlight new findings arising from this analysis.

- Energy systems modelling with TIMES-Ireland points to how very challenging meeting the target of halving greenhouse gases by 2030 will be. With business-as-usual energy demands, and without breakthrough technologies, we are seeing marginal abatement costs of well over €1,000/tonne in mitigating energy-related emissions by 2030.

- This means that every sector will need to push for maximum feasible abatement, and that incremental changes will not be enough to meet the target.

- It is likely that the transport sector will be required to reduce emissions faster than other sectors. Depending on our assumptions of technology availability, the evolution of demands and efforts across other sectors, in particular agriculture, the TIMES-Ireland Model sees transport emission falling by between 45 and 65% by 2030.

- To succeed in this, it is likely that meeting the target of nearly 1 million EVs on our road by 2030 is necessary, but at the same time, that it will not be enough.

- This point is reinforced by the recently published EPA emissions projections, which show that the measures in the 2019 Climate Action Plan, including the 1 million EV target, will only see emissions from transport reduced by a quarter, as growth in activity offsets the emissions savings from the measures.

- It is very clear that technology switches alone will not be sufficient to meeting the Paris Agreement targets, and would make energy more expensive, less reliable, and potentially require us to rely on imported biofuels in the near-term, and negative emissions options like Biomass with Carbon Capture and Storage in the longer term. These are all problematic and could lead to unintended consequences.

- In my opinion, the narrative around setting mitigation targets based on the number of EVs in 2030 is problematic for several reasons. Would be like my planning to lose weight based on a target of how much salad I'm going to eat next year, when in reality I need to reduce junk food. Similarly with transport, we should be focussing all efforts on reducing the number of cars burning petrol and diesel, and minimising their use. Electrification is an important way of achieving this, but by no means sufficient.

- Oil use in transport needs to go back to the level consumed in 1994.
    - To do this, we need not just to focus on maximising the sale of EVs. We need to immediately minimise the number of additional internal combustion engine vehicles brought into the country; this includes hybrid and plug-in hybrid vehicles: our modelling sees very little role for these going forward.
    - Every car and van that uses petrol or diesel that is brought into this country from now, whether new or second hand, will cause significant emissions well into our third carbon budget.
    - SUVs now make up half of new car sales, up from 13% a decade ago. SUV sales far outstrip those of EVs.
    - Focussing on EVs alone also fails to tackle very strong growth in emissions from freight transport.
    - Biofuels will also be needed – as far as possible these should be produced domestically using strict sustainability practices, rewarding farmers who switch from livestock production.

- Primarily, we need to reduce the activity levels of cars, vans and trucks. In UCC we are also developing models to understand how and why we travel. For example, new research by researcher Vera O'Riordan suggests that over one-fifth of passenger transport emissions are from "companion journeys", nearly as much as for commuting (Figure 1). Much of this is for the school run. In 1986, less than a quarter of primary school students travelled to school by car. That share is now 60% and increasing. For secondary students, the share has increased from 11% to 42%. Only 2% of secondary school students now cycle to school, when in 1986, more students cycled than went to school by car.

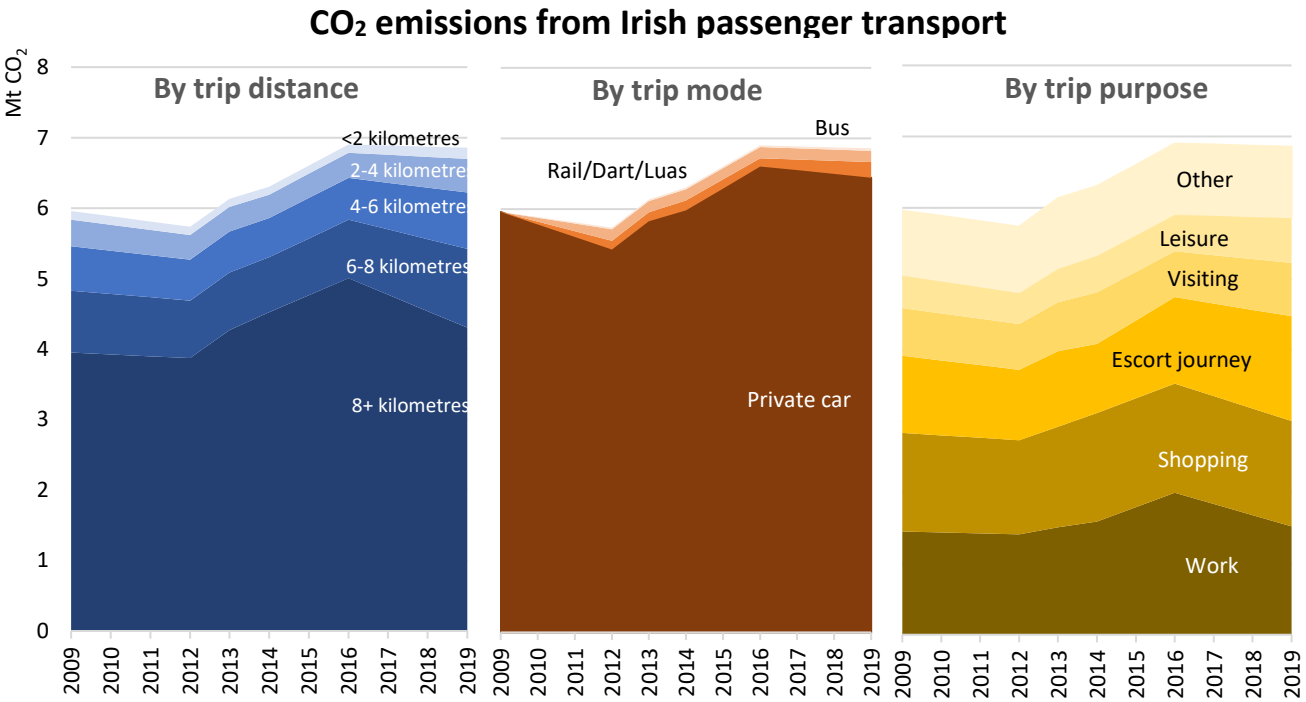

Figure 1 Source: O'Riordan V., Rogan F., O'Gallachoir B.P. & Daly H. (2021) How and why we travel: Introducing the Irish Passenger Transport Emissions and Mobility (IPTEM) Model. Manuscript in preparation.

- This is not a surprise – we have devoted so much of our public realm to cars that it is hostile to people, especially children. The number of cars on the road has tripled since 1990, leaving much less space for people. Many of my local primary schools do not even have footpaths leading to them.

- We have also found that nearly 40% of passenger transport emissions arise from trips shorter than 8 kilometres, a distance which can be comfortably cycled by most people, especially with an e-bike. EVs will have the greatest value if they replace longer distance trips, especially trips which cannot easily be switched to bus or rail.

- Another problem with not tackling demand growth is not just that it could put our emissions targets out of reach; it will also put immense pressure on the electricity grid. In our core TIMES model scenarios, with business-as-usual energy demand growth, our modelling suggests that electricity demand could double by 2030 because of data centre growth and the electrification of heat and transport.

- To look at alternatives to this scenario, we have modelled a new Low Energy Demand pathway which includes "avoid" and "shift"-type measures for all sectors: Our analysis is clear that the transition to 2030 will be far more feasible with lower energy demands.

- A final point I would like to make is to call for more transparency behind the analysis underpinning national climate mitigation targets. In UCC we have been opening our models, to great benefit. We must be humble and honest about what these models can and cannot say. There is an expression that "All models are wrong – but some are useful". They are not crystal balls. But in my opinion, stakeholders and society can only reach consensus on the best way forward if we start from a common understanding of data and assumptions.

- I thank you for your time and look forward to your questions.