Brief Discussion Paper

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Introduction:

The challenges faced by Ireland in meeting emission reduction targets are well-documented (Carroll, 2018; Climate Change Advisory Council (CCAC), 2018) and it is clear that without significant actions that Ireland will continue to miss the targets set by the European Commission to reduce CO_2 emissions by 80% by 2050. The role of transport in contributing to emissions is apparent, contributing nearly 19.8% of total GHG emissions in 2017 (EPA, 2018).

The Climate Action Plan (CAP) (Government of Ireland, 2019) sets out a plan to bring about a reduction in emissions, with emphasis on the role of Electric Vehicles, for private, public, public service and freight transport. However, the take-up of EVs has been relatively slow in Ireland, and while the CAP sets out that tax treatments and incentives need to be continued or put in place to incentivise EV take-up, other measures must also be taken if we are to meet our emissions targets : these must include changes in housing and employment location, reduction in travel, a modal shift from private car to public transport and an examination of rural transport.

EV Risks:

The CAP sets the ambitious target of 840,000 private EVs on the road by 2030. Assuming new car sales of approximately 125,000 a year for 10 years between 2020 and 2030, if Ireland were to reach the target set by CAP of 840,000 passenger EVs on the road by 2030, this would mean that approximately 70% of all passenger cars purchased in that period would need to be EVs. Even the lower target of 500,000 EVs by 2030, set out by the National Development Plan (Department of Transport Tourism and Sports, 2018) would require 40% of all passenger cars sold to be EVs. However, EVs are more expensive to purchase, with a limited, although growing, range of vehicle options available. While battery costs are declining, and the CAP predicts a 67% decrease by 2030, this will likely not have a significant impact on costs until the second half of the decade. The lower cost of using EVs is expected to offset the high initial purchase costs but these operating costs are not likely to remain at such low rates indefinitely. While EVs are undoubtedly less damaging ICE vehicles, they are not without impacts on the environment and they should not be seen as the ultimate solution to emissions issues- change in behaviour and lifestyle are also required so that travel demand is reduced and shifted to alternative modes, rather than just catered for with EVs. A coordinated approach is required where travel demand is reduced and managed more sustainably.

Location, location, location

The National Planning Framework (NPF) has set out objectives to ensure that future growth will take place in a more strategic and focussed manner, allowing higher density development and therefore simplifying the provision of mass transit. However, it is unclear how those objectives will be translated into reality and if new development is currently taking place in the manner set out by the NPF. Research into how these more sustainable communities can be created at a large scale needs to be conducted. In addition, the relationship between choice of residential location and choice of transport mode requires greater understanding. Better planning and more considered thought to how housing is developed could result in lower levels of car dependence and lower emissions. However, this type of development has not yet traditionally taken place in Ireland and our history of developing sustainable communities with low car dependency is poor. In fact, analysis of CSO data shows higher reliance on the car in Dublin areas developed post 2001 (Rock et al, 2016; Caulfield and Ahern, 2014).

Understanding the impact of land use on transport is complicated. Research in Ireland has shown some relationships between development type and modal share, with sustainable travel areas (areas with high residential density and more local jobs) showing significantly lower levels of car dependence than unsustainable travel areas (areas with low housing density and low levels of local jobs) in Dublin (Humphreys and Ahern, 2019). This research also found that continuation of travel experiences and modal choices was evident in Dublin so creating good travel habits early on can create more sustainable travel going forward. There are limited numbers of sustainable travel areas in the Greater Dublin Area, and these rarely provide homes of sufficient size for families: these areas tended to have more temporary types of housing, unsuited to long-term residency, leading the Humphreys and Ahern to conclude that "the housing supply characteristics of the Greater Dublin Area have …threatened the permanency of modal shift achieved by land-use measures." In short, the authors found that those areas that were most likely to have low levels of car use, high density housing and good public transport were mostly likely to be linked to temporary residency: housing policy in future needs to consider how more sustainable developments can incorporate the housing needs of diverse groups. Population density is not the only factor that is important in terms of modal choice, however, as Caufield and Ahern (2014) demonstrated in their study showing residential areas developed post-2001 Dublin have higher car ownership and car use: the location of these areas on the periphery of the city combined with poor public transport infrastructure has led to high levels of car use despite higher population densities. Vega et al (2016) also found that those living in newer areas of the city built during the period of economic growth from 2001-2007 are most likely to be living in areas where infrastructure was not appropriately developed, or had not developed as promised

Behaviour – modal shift, reducing the need to travel

The Climate Action Plan emphasises that in addition to reducing the "carbon intensity of travel", it is also important to reduce the intensity of travel demand, through investment in public transport infrastructure (Bus Connects, Metro, Light Rail extensions, Park and Ride) and active modes (walking and cycling infrastructure). The importance of reducing private

car demand is vitally important and must supplement any shift to alternate fuel vehicles. This can be achieved through both disincentivising the car (through parking, tolls, taxes on fuel) and through incentivising alternative modes (Carroll et al, 2017). Carroll et al (2019a and 2019b) demonstrated that introducing public transport incentives, such as shorter travel times and lower costs, could bring about a tangible shift from private car to public transport, resulting in significant emissions savings; while investment in active mode infrastructure would also bring about a shift from car to sustainable modes. In particular, Carroll et al (2019b) found that investment in pedestrian infrastructure could bring about significant increases in use of walking as a mode – this is a mode that has been very much ignored in past policy and strategies. Therefore, it is important that investment in pedestrian infrastructure is not ignored: as Carroll et al point out "much of the emphasis in the past in Dublin and other cities has been on increasing cycle infrastructure" and "the importance of not neglecting walking infrastructure as it is in this mode that the most significant increases might be expected with increased investment."

Carroll (2018) also points out the need for disincentives for car use and particularly makes the case for "appropriately price car travel and parking", especially workplace parking which is often free in Dublin. He argues for more consideration of tolls, road pricing, hypothecated carbon taxes, limiting parking and reducing parking available at homes, replacing minimum parking requirements with maximum parking requirements.

There needs also to be greater consideration to rural transport policy and the particular difficulties associated with balancing the provision of a sustainable transport system with a system that meets the transport needs of rural residents and businesses. More research is required to examine how travel demand might be reduced in rural areas, as it is not possible to provide extensive public transport services in these rural areas. The Rural Transport Programme in Ireland has been successful in terms of increasing numbers of passenger journeys (increasing form 1.76 million in 2015 to 2 million in 2018 (NTA, 2019). The focus of that programme has been on addressing social exclusion, which is commendable and necessary: but there has not been consideration of the role that can be played by the RTP in promoting sustainability and reducing emissions and car dependence. The impact of any carbon tax on those living in rural areas needs also to be considered in terms of balancing equity and sustainability.

Conclusion:

It is only through a coordinated approach that a real reduction in emissions can be achieved. For examples, ensuring that the vehicle fleet (whether private, public or freight) migrates from ICE V to EV (or other alternate fuels) is most definitely important, but the challenges that will be faced in doing this should not be underestimated, in terms of persuading behavioural change in consumers, incentivising ownership of EVs and ensuring appropriate infrastructure is in place. Therefore, it is also important to consider how land use, residential location, public transport provision and encouragement of active modes can be used to reduce the need to travel and to shift travel demand away from the private car. Over-

reliance on EVs as the answer to our problems encourages continued dependence on the private car and continuation of unsustainable travel behaviour.

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