Measures and initiatives taken by Transport Infrastructure Ireland (TII) to reduce emissions

MAY 2020
INTRODUCTION

This note has been prepared in response to a recent request for details of TII’s response to the challenges facing public sector bodies in reducing carbon emissions. There is no doubt that decarbonising transport is one of the most urgent and complicated challenges facing the global transport sector and it is a critical piece of the jigsaw in the fight against climate change, as according to the International Transport Forum (ITF) “climate change cannot be stopped without decarbonising transport”. It is also important to note that in contrast with other sectors of the economy, transport has not yet succeeded in significantly reducing its carbon intensity and it would appear that without more effective and transformative measures to decarbonise transport, Ireland will struggle to meet national emissions targets, even if we make substantial progress in other sectors.

We also note that while annual targets would generally be considered helpful, as they can assist in encouraging and monitoring progress, we would propose that any annual targets are clearly linked to national and EU longer-term targets, as the transport sector generally works to longer term planning and investment cycles. For example, we note that the EU Green Deal states that to achieve climate neutrality a 90% reduction in transport emissions is needed by 2050 by Member States.

It is also worth considering that the process for analysing and monitoring carbon emissions across the transport sector is quite a challenging process in its own right. We would welcome an opportunity to share lessons learned from our recent carbon benchmarking exercise (covered below) as this process will be important in ensuring that we collectively understand the impacts of policies and measures aimed at decarbonising the sector and ensuring that all stakeholders can play their part.

TII also believes that decarbonising transport will require a significant level of resource and expertise to be redirected into this area and while we expect that as our industry gains momentum, decarbonising initiatives will become embedded into the ‘business as usual’ model; this is not the case today. As such we would welcome an opportunity to explore the resources needed at a national level to deliver on such a challenging transition – to a low-carbon economy with a low-carbon transport sector.

We would like to recommend that decarbonising transport should not be considered simply as a technical or an engineering challenge – it is also a social and cultural challenge. Nor should it be considered in isolation from the need to develop our economy and the transport industry in line with the UN Sustainable Development Goals (SDGs).

Tackling climate change and decarbonising transport is part of a broader need to transform the transport sector to become a much more sustainable sector (which the World Bank defines as safer, greener, accessible and more efficient).

In this regard TII adopted a Sustainability Statement in 2018 with a commitment to embed sustainability principles into the development and operation of the road and light rail networks; therefore, contributing to social well-being, supporting economic efficiency, and protecting, restoring and enhancing environmental systems for future generations.

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Furthermore TII recently established a new cross-divisional governance structure aimed at supporting the development of a new Sustainability Implementation Plan and delivering tangible progress in the area of sustainable development and decarbonising transport. The principles of the Sustainability Implementation Plan will align with the SDGs and will provide the foundation for the development of all future sustainability initiatives as well as providing a platform for stakeholder engagement and reporting.

In effect, TII’s ambition is to play a greater role in leading the transformation to a sustainable and decarbonised transport sector in Ireland.

Additionally at a high level, TII recognises that transitioning to a low carbon economy and to a decarbonised transport sector will require changes in development and land use patterns to promote and sustain compact growth, as well as providing much more public transport infrastructure and services and promoting active travel modes.

So there is clearly a lot to do! And TII recognises that the challenges facing the Irish transport sector are both complex and interconnected and, therefore, cannot be solved by one transport agency in isolation. TII has therefore been focussing on developing a more collaborative approach in this area involving central government, transport agencies, academia and industry partners in pursuit of our shared strategic goals.
CURRENT RELEVANT CARBON REDUCTION INITIATIVES

In terms of current initiatives which we believe are contributing and / or can contribute towards reducing carbon emissions, we would like to highlight a number of current initiatives as follows:

PUBLIC TRANSPORT
Providing good public transport services is at the heart of current transport policy and as part of the National Development Plan, TII is progressing with additional public transport schemes including the MetroLink project in Dublin and additional light rail schemes for Dublin and Cork.

CYCLING
During the development of National Roads projects consideration is given to all road users including pedestrians and cyclists. TII funded the construction of 40 kilometres of cycleway to date and a further 23km are under construction in 2020. The default position under TII’s design standards is to construct a cycleway on all New Type 2 and Type 3 single carriageway and Type 2 and Type 3 dual carriageway roads.

CONTRIBUTION OF THE NATIONAL ROADS NETWORK TO PUBLIC TRANSPORT
In 2017, 278 million public transport passenger trips were made in Ireland. Of these passenger trips, some 195 million, or 70% of all passenger trips, were made on either a bus or coach service. Bus and coach services represent the biggest source of public transport capacity in Ireland. Buses and coaches are dependent on well-maintained road networks to deliver their services.

Many bus and coach services operate on National Roads as these networks tend to be of high quality and provide the most direct routes. The network of bus and coach services is truly national in its coverage, giving people in urban and rural communities access to opportunities and services without having to rely on the private car. 87% of the road network carrying bus/coach services is national road.

Commuter and Intercity services are operated by a mixture of Bus Éireann and an increasing number of commercial operators, connecting urban areas to each other and outlying commuter towns to their respective urban areas. These services make excellent use of the motorway network to offer competitive and reliable journey times to passengers, making bus travel an attractive option for intercity and commuting travel. This is particularly well evidenced in the Greater Dublin Area where the growth of the motorway network has facilitated a corresponding growth in the number of coach and bus services operating nationally. There are over 2,400 buses and coaches travelling through the Dublin Tunnel on an average week day.

The repurposing of hard shoulders along congested National Road approaches to cities has the potential to increase the people carrying capacity of some of the most congested corridors on the National Road network.

Measures and Initiatives taken by Transport Infrastructure Ireland (TII) to reduce emissions.
CURRENT RELEVANT CARBON REDUCTION INITIATIVES CONT’D

PARK & SHARE
TII is funding a pilot Park and Share facility off the M1 in Co. Louth. Park and Share facilities provide dedicated space to allow safe parking for vehicles to facilitate car and vehicle pooling. TII has identified potential safety issues where informal car parking associated with car-pooling is occurring on national roads on the approaches to motorway junctions. The pilot project is being developed by Louth County Council on TII’s behalf and the new facility will be located close to Junction 16 of the M1. It is anticipated that the site will be constructed by Q1 2021.

If successful, this initiative can be rolled out to other locations close to other Motorway junctions where car-pooling is being observed.

ENERGY EFFICIENCY AND CO2 REDUCTION
Energy Efficiency to 2020: TII’s Energy efficiency Initiatives to 2020 involved implementing a programme of energy efficiency projects across the national roads network, the light rail network and through funding of local authority lighting schemes, in line with the Public Sector Energy Efficiency Strategy as per public sector targets set down in the National Energy Efficiency Action Plan.

Energy Efficiency & CO2 Reduction to 2030: The recently released 2019 Climate Action Plan has now increased the level of ambition to a 50% improvement in public sector energy efficiency and a 30% reduction in CO2e from the sector by 2030, “with a view to achieving carbon neutrality by 2050”. TII acknowledge that a step change is required to meet these targets resulting in the planned introduction of renewable energy technologies across our light rail and national road networks, technologies such as rooftop solar PV arrays for the production of onsite renewable electricity, geothermal heat pumps for the harnessing of geothermal energy to heat and cool buildings and structures. This onsite generation of clean energy designed to serve the respective network electrical and thermal baseload will ensure TII can deliver on its energy efficiency and CO2 reduction targets for 2030.

Following the success of the M50 intelligent lighting control project which resulted in energy savings of 40% for the M50 motorway, TII plan to capitalise on this success by rolling out this system to other national roads and their respective road tunnels on the network. In addition to this, TII will continue to assist our Local Authority (LA) partners in reaching their targets. We will upgrade motorway junction lighting which are under the direct control of TII, to the current lighting standards through the use of trimming and dimming and we will continue to fund LA LED lighting schemes until the anticipated roll-out of the Roads Management Office (RMO) led national LED retrofit starts in 2020.

TII will continue to work with our partners to increase the efficiency of our light rail vehicles with planned implementation of intelligent controls and technologies for lighting and heating of light rail vehicles including the capture and reuse of regenerative braking energy. Roof structures in all three TII Light rail depots has been identified as suitable to support rooftop solar PV array technology which will contribute greatly to TII’s aim and transition to a low carbon transport provider. Regarding TII road transport consumption, the renewal of TII’s own corporate fleet, replacing diesels with hybrid or electric vehicles, will continue with the eventual aim for the fleet to be either EV (Electric Vehicle) or PHEV (Plug-in Hybrid Electric Vehicle). To support the implementation of the above, TII has implemented an energy management system to ISO 50001, achieved accreditation and to ensure the performance of assets outside their control have included within their procurement documentation, the requirement that contractors or operators are also ISO 50001 accredited. Work to date has resulted in real reductions in energy consumption and carbon emissions which are reported annually through the SEAI M&R system whilst measures proposed above will provide that step change to achieve the increased efficiency targets to 2030 including the new 30% CO2 emissions reduction target. TII is now studying how best to encourage the deployment of more renewable energy across our supply chain and are investigating the most energy efficiency and low carbon solution to powering new Metrolink trains and stations.
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DEVELOPMENT OF A CARBON ASSESSMENT TOOL
TII has developed a carbon assessment tool with the aim of reducing the amount of embodied carbon generated during the construction phase of transport projects and TII is now using this tool to calculate carbon savings and assess options. As part of this area TII is also seeking other options to reduce embodied carbon for construction projects and in this context have been exploring enhancing native woodland planting and working with other public and private bodies on peatland regeneration as a means of carbon off setting.

ROADMAP TO LOW CARBON
To better understand the pathway to a carbon neutral future, TII began to develop a model of our carbon footprint in 2019 across three pillars as follows: i) operational emissions, ii) embodied carbon emissions from asset delivery and iii) emissions in use (i.e. from use of the transport infrastructure).

Once the baseline has been established TII will then be in a position to consider a range of interventions and assess the various options through scenario analysis which can contribute to a ‘roadmap’ of short, medium and long term interventions.

The initial findings indicate that approximately 95% of the carbon emissions (i.e. pillar 3) are from motorised road users on the national roads network.

This area is highly complex and heavily reliant on data. TII also commenced a number of studies to better understand these ‘emissions in use’ including a study on decarbonising freight in Ireland (see below) and a study on women’s travel patterns (see below) which will help to inform future policy and decision making with regard to influencing behavioural change and a shift towards sustainable modes.

Approximately 4 % of carbon is embedded in TII construction projects (i.e. pillar 2) and evidence from the carbon study indicates, for instance, that the carbon intensity of construction of a Luas scheme is significantly lower than that of a road scheme. TII is exploring means of favouring lower embedded carbon construction solutions in its public procurement processes.

The remaining 1% approximately relates to TII’s corporate and operations base (i.e. pillar 1) and 84% of this pillar relates to TII’s electricity consumption (i.e. energy usage for its offices, light rail network, motorways operations and traffic route lighting, and this has been reducing for the last number of years.)

TII is amending its service area signing policy to indicate the location and pricing of electric charging infrastructure.

CURRENT RELEVANT CARBON REDUCTION INITIATIVES

CONT’D

TII Roadmap to Low Carbon
Road Freight Decarbonising
Collaborative Workshops
Women’s Mobility Study
Sustainable Funding and Demand Management
TII Roadmap to Low Carbon

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CURRENT RELEVANT CARBON REDUCTION INITIATIVES CONT’D

STUDY ON DECARBONISING ROAD FREIGHT TRANSPORT IN IRELAND
The objective of this study which is ongoing is to better understand freight flows and logistics to identify the most efficient and effective decarbonising measures over the medium to long term. TII is actively engaging with the road freight industry to understand pathways to reducing emissions from road freight, which accounts for a significant proportion of transport emissions (up to 25%). As part of this TII is conducting a series of workshops to identify and co-design effective and affordable interventions which will have a meaningful impact. This work is co-funded by DTaaS.

STUDY TO BETTER UNDERSTAND WOMEN’S TRAVEL PATTERNS AND NEEDS IN IRELAND
Transport is often seen as gender-neutral, providing benefit to all equally. However a growing body of international research highlights that this is not the case. Women and men have different needs, constraints and expectations for using transport. In 2014, the United Nations Commission on the Status of Women found a male bias in the planning, provision and design of transport systems and our study, which is the first of its kind in Ireland, will help identify the patterns, problems, constraints and issues associated with women’s mobility and the resultant social, societal and economic repercussions of gender bias within the transport system.

At a time when we need people to switch from their cars to more sustainable forms of transport, understanding the travel patterns and needs of women form a critical part of the overall sustainability and decarbonising transport agenda.

ROAD USER CHARGING
TII has explored the potential of road user charging measures in Ireland as a means of managing demand, encouraging more sustainable vehicles and modes and generating a more sustainable funding stream. We note that while to date there are no fiscal policies proposed in the area of demand management, we would encourage that this issue be considered in light of the longer term opportunity which will arise as and when TII takes back the PPP toll roads into public ownership (circa. 2030 to 2040). Modernising our existing tolling arrangements in Ireland in line with EU user charging policies could provide a significant carbon dividend, as well as a financial contribution which may be more important in light of the need to reform the current suite of motor taxation policies as the national fleet transitions away from petrol and diesel.

Also related to this area we note that TII has been managing a toll incentivisation scheme for the promotion of electric vehicles on behalf of DTaaS for the past couple of years.