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The pathway to net zero: Reducing emissions from road transport in NI

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1 Introduction

Transport is the largest contributor to UK wide greenhouse gas (GHG) emissions and the second largest contributor in Northern Ireland. This paper focuses on the potential pathway to reducing emissions from road transport, which accounts for the largest share of emissions within the transport sector.

This paper has been prepared for the Northern Ireland Assembly Infrastructure Committee as a follow up to [‘Decarbonising Transport in Northern Ireland’](#) published in October 2020. That paper examined climate policy, travel behaviour and identified a range of potential policy interventions that could be employed to support decarbonisation objectives. The purpose of this paper is to:

- provide an overview of Northern Ireland’s legal obligations in support of the UK Government’s pathway to net zero by 2050;
- set out the key policy areas to address road transport emissions;
- Highlight the key challenges; and
- Identify potential areas of further inquiry for the committee for pursue.

2 The pathway to net zero

The countdown has started. The UK Government has legislated for a 100% reduction of GHG emissions (compared to 1990 levels),¹ otherwise known as ‘net zero’ emissions, from the UK by 2050. The Climate Change Act 2008 had committed the UK to an 80% reduction in carbon emissions relative to the levels in 1990, to be achieved by 2050. However, in June 2019, secondary legislation was passed that extended that target to “at least 100%”.²

2.1 Northern Ireland’s contribution

Northern Ireland will have to make a significant contribution if the UK is to realise its net zero objective. However, analysis by the Committee for Climate Change (CCC)³, has concluded that it is not necessary or indeed possible for NI, as a region, to achieve Net Zero by 2050.

According to the CCC, an 82% reduction in all greenhouse gases in Northern Ireland represents equivalent effort and a fair contribution to the UK Net Zero target.⁴ The CCC believe NI should achieve Net Zero CO₂ emissions by 2050 as part of the Balanced Pathway to UK Net Zero.⁵

Northern Ireland’s current commitment to tackle climate change are set out in the Climate Change Act 2008. However, the Department for Agriculture, Environment and Rural Affairs (DAERA) published a discussion document on a future climate change bill that would define NI’s decarbonisation targets in December 2020.⁶ The options presented in that paper to aim for either net zero by 2050 or accept the CCC recommendation.

Scotland and Wales have already introduced climate change legislation:

- The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 amends the Climate Change (Scotland) Act 2009 and set new targets for Scotland to reduce Scotland’s emissions of all greenhouse gases to net zero by 2045 at the latest;
- The Environment (Wales) Act 2016 places a duty on Welsh Ministers to ensure that net emissions are 80% lower than the 1990 baseline by 2050. However, the Welsh Government has committed to bring regulations to establish a net-zero (by 2050) target for Wales.

¹ [The Climate Change Act 2008 \(2050 Target Amendment\) Order 2019](#)

² Committee on Climate Change, [Net Zero – The UK’s contribution to stopping global warming](#), May 2019

³ The CCC is a non-departmental public body that advises the government on the climate

⁴ Committee for Climate Change, [Letter: Lord Deben, Climate Change Committee to Edwin Poots MLA](#), 9 December 2020

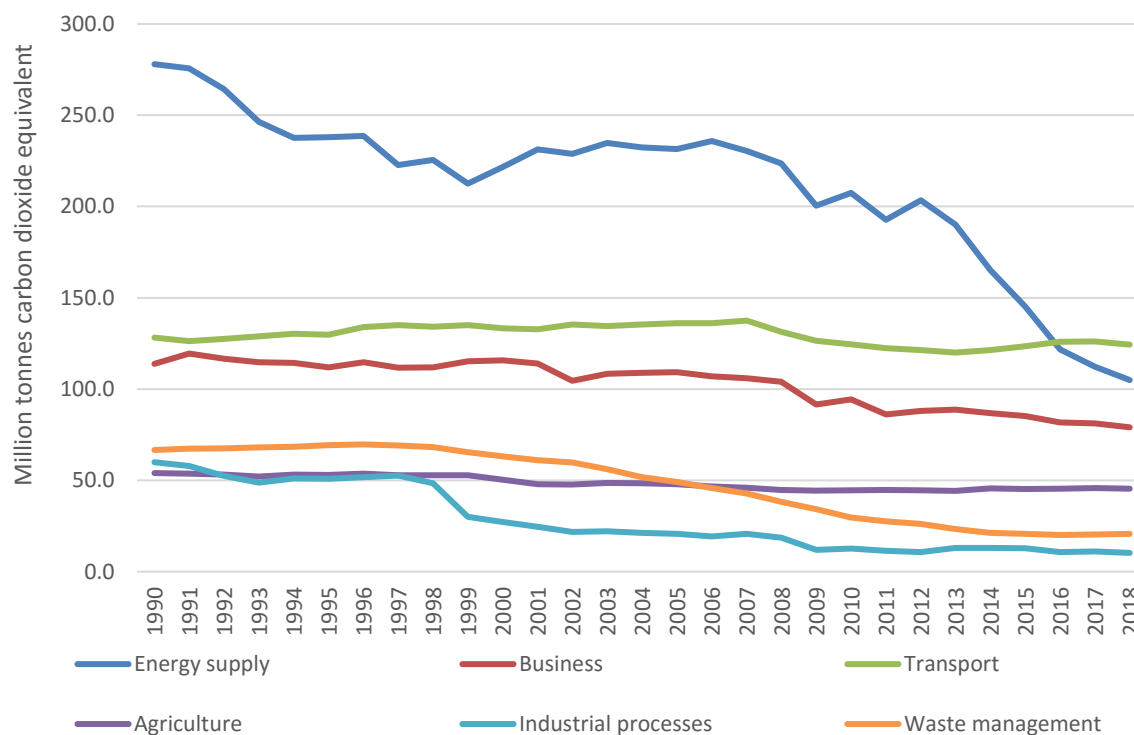
⁵ Committee for Climate Change, [Letter: Lord Deben, Climate Change Committee to Edwin Poots MLA](#), 9 December 2020

⁶ Department for Agriculture, Environment and Rural Affairs, [Discussion Document on a Northern Ireland Climate Change Bill](#), December 2020

2.2 Sector specific interventions

Energy supply (generating electricity from burning fuels such as coal, oil and natural gas) was, by far, the largest source of emissions in 1990. However, policy interventions such as the phasing out of coal and increasing the use of renewables, such as wind and solar have seen its emissions drop.

Figure 1: UK emissions by sector, 1990-2018



Source: Department for Business, Energy & Industrial Strategy

2.2.1 Transport emissions

Transport has proven much more difficult to decarbonise than other sectors with emissions only 3% lower than in 1990.⁷ Transport is now the largest contributor to UK domestic GHG emissions, contributing 28% of UK domestic emissions in 2018 (figure 2). Within transport, road transport is the largest emitter of GHG with cars the largest contributor (figure 3).

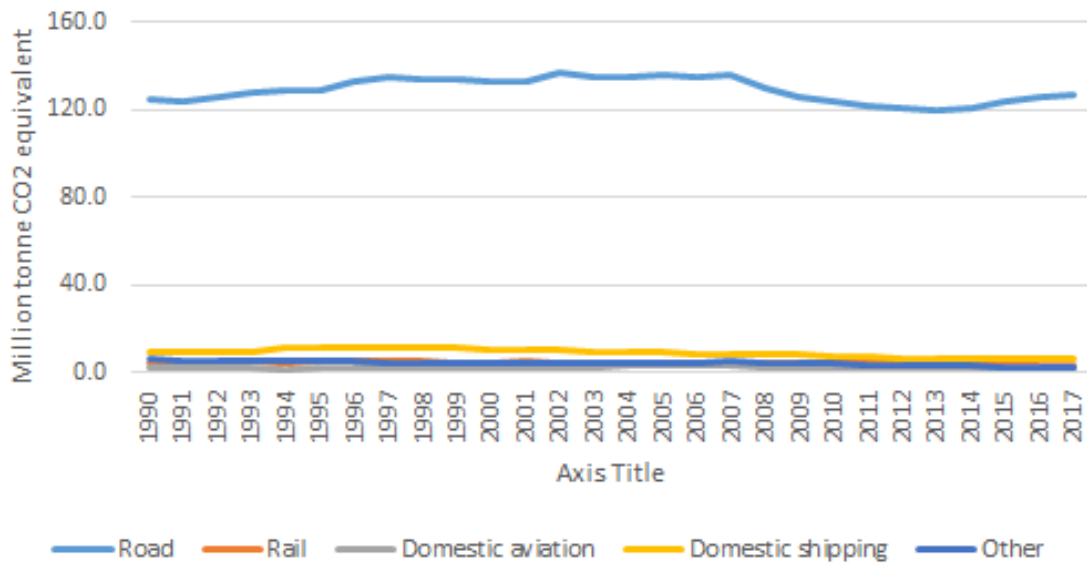
The UK Government is developing a transport decarbonisation plan (TDP), that will aim to achieve net zero emissions across all transport modes by 2050.⁸ The key areas of focus in the TDP consultation are on:

- Accelerating modal shift to public and active transport; and
- Decarbonisation of road vehicles.

⁷ Department for Business, Energy & Industrial Strategy, [2018 UK greenhouse gas emissions: final figures – statistical release](#), May 2020.

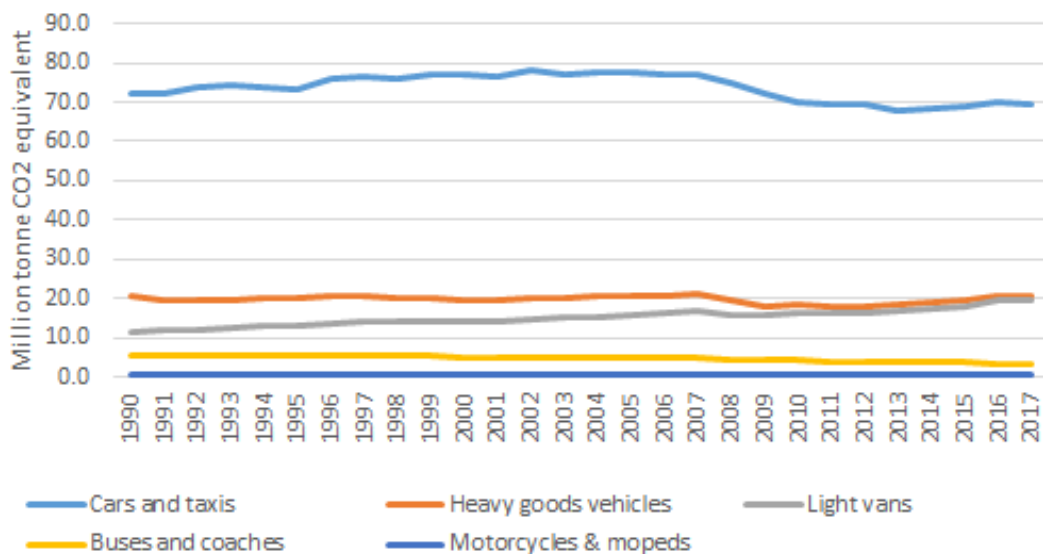
⁸ Department for Transport, [Decarbonising transport: setting the challenge](#), March 2020

Figure 2: Transport emissions by mode: United Kingdom, 1990-2017



Source: Department for Business, Energy & Industrial Strategy

Figure 3: Road transport emissions by mode: United Kingdom, 1990-2017



Source: Department for Business, Energy & Industrial Strategy

3 The challenge of tackling road traffic emissions

The pathways towards decarbonising road transport will be based upon the uptake of low-carbon technologies and behavioural change to both reduce travel demand and shift journeys onto lower-carbon modes of transport.⁹

⁹ Committee for Climate Change, [The Sixth Carbon Budget: The UK's path to Net Zero](#), December 2020

3.1 Ultra low emission vehicles (ULEV)

The UK Government has accelerated its plans to decarbonise road transport. In November 2020 the Prime Minister announced:

- the sale of new petrol and diesel cars and vans will be prohibited from 2030.¹⁰
- all new cars and vans be fully zero emission at the tailpipe from 2035.
- Between 2030 and 2035, new cars and vans can be sold if they have the capability to drive a significant distance with zero emissions (for example, plug-in hybrids or full hybrids).¹¹

The Committee on Climate Change (CCC)'s net zero technical report had found previous plans to end the sale of new petrol and diesel cars and vans by 2040 would have been insufficient for meeting the UK's net zero target.¹²

3.1.1 Uptake of ULEV

Data from the Department for Transport (DfT) shows that:

- out of approximately 39.4 million licensed vehicles in the UK at the end of 2018, around 0.2 million (0.5%) were ultra-low emission vehicles (ULEVs).¹³
- Of the approximately 1.2 million licensed vehicles in Northern Ireland, just over 3,600 (table 2) were ULEVs (0.3%).¹⁴

Table 1: Licensed ultra-low emission vehicles (ULEVs) at the end of 2020 Q2, by body type and region, United Kingdom from 2010 Q1

	All cars	All motorcycles	Goods vehicles	HGV	Buses and coaches	Other vehicles	Total
England	263,625	3,121	11,278	334	649	4581	283,588
Wales	6,108	82	379	5	1	51	6,626
Scotland	17,181	139	745	8	27	177	18,277
Northern Ireland	3,511	32	127	1	0	2	3,673

Source: Department for Transport

Consumer perception and willingness to purchase these new vehicle technologies will be key to realisation of decarbonisation targets. Question on attitudes towards Electric Vehicles (EV) have been included in Northern Ireland's Continuous Household Survey

¹⁰ UK Government, [Government takes historic step towards net-zero with end of sale of new petrol and diesel cars by 2030](#), November 2020

¹¹ Ibid.

¹² Committee for Climate Change, [Net Zero Technical Report](#), May 2019

¹³ ONS, [Road transport and air emissions](#), September 2019

¹⁴ DfT, Vehicle Licensing Statistics: 2019 Quarter 1 (Jan - Mar), April 2019

in 2014/15 and 2015/16, then again in 2019/20. The report of the findings from the 2019/20 CHS show that:

- 2% of respondents said their next purchase would 'definitely be an EV' while almost a quarter (23%) said they would 'strongly consider' an EV for their next purchase. The remaining 75% indicated it would be unlikely or definitely would not be their next purchase.
- Of those that said they would 'definitely' buy or consider an EV for their next purchase, over a fifth (21%) said they would be likely to buy 'within the next 2 years' while more than half (51%) said this would be 'between 2 and 5 years' time.
- The main reasons encouraging respondents to buy EV were 'Low overall running costs' (cited by 53% of respondents) followed by 'up to £3,500 grant towards purchase of an electric vehicle' (51%). 45% would be encouraged by EV being environmentally friendly.
- The main reasons discouraging respondents from buying EV were 'purchase price' (64% of respondents), 'need to recharge your vehicle' (49%) and 'vehicle range from one charge' (37% of respondents).
- When asked about the likelihood of buying an EV as their next vehicle, the proportion who said they would 'definitely' buy or 'strongly consider' an electric vehicle for their next purchase was highest amongst those living in Lisburn and Castlereagh District Council (32%) and lowest amongst those living in Fermanagh and Omagh District Council (16%).
- There survey found no difference in likelihood to purchase an EV between those living in urban and rural areas.

Recommendation for further inquiry

The data from both the DfT and CHS show that uptake of EV is low and there are still many people who do not consider moving to EV as a viable option for them. Given the sale of petrol and diesel cars and vans is set to end in less than ten years from now, it will be important to ensure the public is well informed on why this measure is necessary and that any concerns they have are addressed.

The committee may wish to explore the awareness of this policy and determine attitudes among members of the public in Northern Ireland.

It is proposed that a survey could be developed assessing attitudes to current government policy and identifying areas of concern among the general public.

3.1.2 Decarbonising public sector and bus fleets

The CCC suggested that the NI Executive could demonstrate leadership, and encourage the uptake of ULEVs, by decarbonising the public sector and bus fleets.

Recommendation for further inquiry

The committee may wish to write to each of the Executive Ministers and seek information on:

- The extent of each Department's fleet;
- A breakdown of vehicle by age, size and fuel type;
- Current use of ULEV;
- Details of vehicle replacement policies;
- Details of plans for fleet decarbonisation.

Translink has developed a strategy that aims to move from the current diesel dominated fleet by 2040. However, Translink has indicated that to upscale the use of electricity and hydrogen as a transport fuel additional financial support is required to cover the initial capital outlay for vehicles and infrastructure.

The capital investment for the bus fleets has been modelled and it shows an average annual requirement of 120 vehicles per annum at a funding requirement of circa £41.6m between 2019 and 2030 for zero-emission technologies. These figures are likely to reduce as zero-emission technologies become more mature and the increased demand for them give rise to economies of scale. Furthermore, it should be noted that by 2030, the adoption of zero-emission technologies, whilst requiring significant capital investment to procure, could provide a circa £5m annual saving in operational costs in terms of fuel and maintenance (i.e. an annual saving of over 9%); and could be regarded as "invest to save" programme.

Recommendation for further inquiry

The committee may wish to write to Translink for a detailed paper outlining its decarbonisation strategy

3.1.3 Decarbonising Freight

The CCC has also indicated that the vast majority of HGVs will also need to be either electric or hydrogen powered by 2050 in order to reach net zero. However, there are significant challenges around developing zero-emissions vehicles and development of

fuelling infrastructure.¹⁵ According to the Chartered Institute of Logistics and Transport (CILT):

*“...at present, there are no feasible ultra-low emission or electric HGV’s on the market that provide businesses with options based on their business model and vehicle requirements”.*¹⁶

The Freight Transport Association (FTA) points out that Northern Ireland has no public fuelling infrastructure for CNG or Hydrogen whilst there is also limited electric charging points meaning businesses will not invest in these technologies. The FTA suggests,

“significant investment in refuelling or recharging infrastructure across the Strategic Road Network would be required. Goods vehicles including vans travel nationwide delivering goods and services and they would need the certainty to know that wherever they were needed, they would be able to successfully and efficiently refuel or recharge their vehicle, with limited down time.”

The CCC accepts that HGVs will be harder to decarbonise, but that a hydrogen/EV based switchover is possible if there is appropriate investment in infrastructure.¹⁷

Recommendation for further inquiry

The committee may wish to write to representative of the Freight sector in Northern Ireland to discuss issues regarding fleet decarbonisation.

3.1.4 Additional considerations

According to the CCC, an additional 0.8 TWh per year of electricity will be required to support the electrification of transport by 2030. As an indication of the possible technology cost in Northern Ireland, the CCC referred to National Grid estimates that to upgrade 50 motorway sites with sufficient power to accommodate 350 kW rapid chargers could cost between £500 million and £1 billion in the UK (£10-20 million per site).¹⁸

¹⁵ Committee on Climate Change, [Net Zero – The UK’s contribution to stopping global warming](#), May 2019

¹⁶ CILT, [Energy Strategy Call for Evidence Response CfE0031](#), June 2020

¹⁷ Committee on Climate Change, [Net Zero – The UK’s contribution to stopping global warming](#), May 2019

¹⁸ Committee for Climate Change, [Reducing Emissions in Northern Ireland](#), February 2019

Recommendation for further inquiry

The Committee may want to inquire from power NI:

- What is the capability of the grid to deal with required expansion of vehicle charging;
- Is there grid capacity to support the installation of new charging technology;
- What are the extent of upgrades required to support new technologies; and
- Have there been any estimates in terms of time and cost for providing the infrastructure to facilitate the move to EV.

4 Overview and proposals for further inquiry

This paper has set out Northern Ireland's legal obligations to support of the UK Government's pathway to net zero by 2050. The clock is now ticking with regards towards the end of new petrol and diesel cars being sold in the UK but despite this being less than ten years from now, less than 1% of all registered cars are ULEVs.

Research from NI's CHS is useful in showing that most people in NI are not considering buying an EV in the near future. However, it is unclear to what extent the general public is aware of current government policy.

This paper proposes conducting a survey to explore the awareness of this policy and determine attitudes among members of the public in Northern Ireland to end of petrol and diesel vehicle sales. It is suggested that this survey will provide the committee with a data set that will enable it to scrutinise the measures being taken by the Department to inform the public on why such a policy measure is required and highlight any concerns which may exist.

The CCC has indicated one way in which the public sector can show leadership is by decarbonising the public sector and bus fleet. It is suggested the committee could investigate the extent to which measures by writing to each of the Executive Departments, Health Trusts and Councils. In order to garner consistent information a survey can also be attached enabling quantifiable data to be analysed and provide a basis for follow up questions if required.

The CCC has highlighted the significance of the freight sector in achieving net zero. The committee may wish to write to representatives of the freight sector in Northern

Ireland to request information regarding issues faced in achieving fleet decarbonisation.

One additional issue highlighted in the paper is grid capacity. The Committee may want to inquire from power NI with plans it has to accommodate transport electrification.