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Emissions Reduction in Transport: Submission to Oireachtas Committee on Climate Action

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MaREI note on greenhouse gas emissions reduction in Transport

This note responds to the Oireachtas Joint Committee on Climate Action request (CCA-I-2021-045) for a written submission from MaREI on reducing greenhouse gas (GHG) emissions in Transport. It summarises the emissions savings associated with measures identified in the Climate Action Plan 2019 and quantifies the savings from additional measures that may be considered for inclusion in Climate Action Plan 2021.

Figure 1 shows the CO₂ emissions in 2018, the projected increase by 2030 due to changes in population and economic growth, projected emissions reductions due to measures in the Climate Action Plan 2019 and the remaining gap to achieving a 51% reduction in transport emissions by 2030 relative to 2018.

- It is worth noting that the projected growth in emissions by 2030 (reported in the Climate Action Plan 2019) due to transport activity growth are estimated to be offset by calculated emissions savings associated with the increased electric vehicles (940,000) and biofuels blending (10% ethanol and 12% biodiesel).
- The Climate Action Plan 2019 projects total transport emissions by 2030 as 7-8 Mega (or million) tonnes by 2030, and contains other measures, including carbon tax and improved engine efficiency. The associated 4.7 Mt emissions savings are more difficult to replicate (than for EVs and biofuels) and these are calculated here as a residual and captured in Figure 1 as ‘other CAP 2019 measures.’

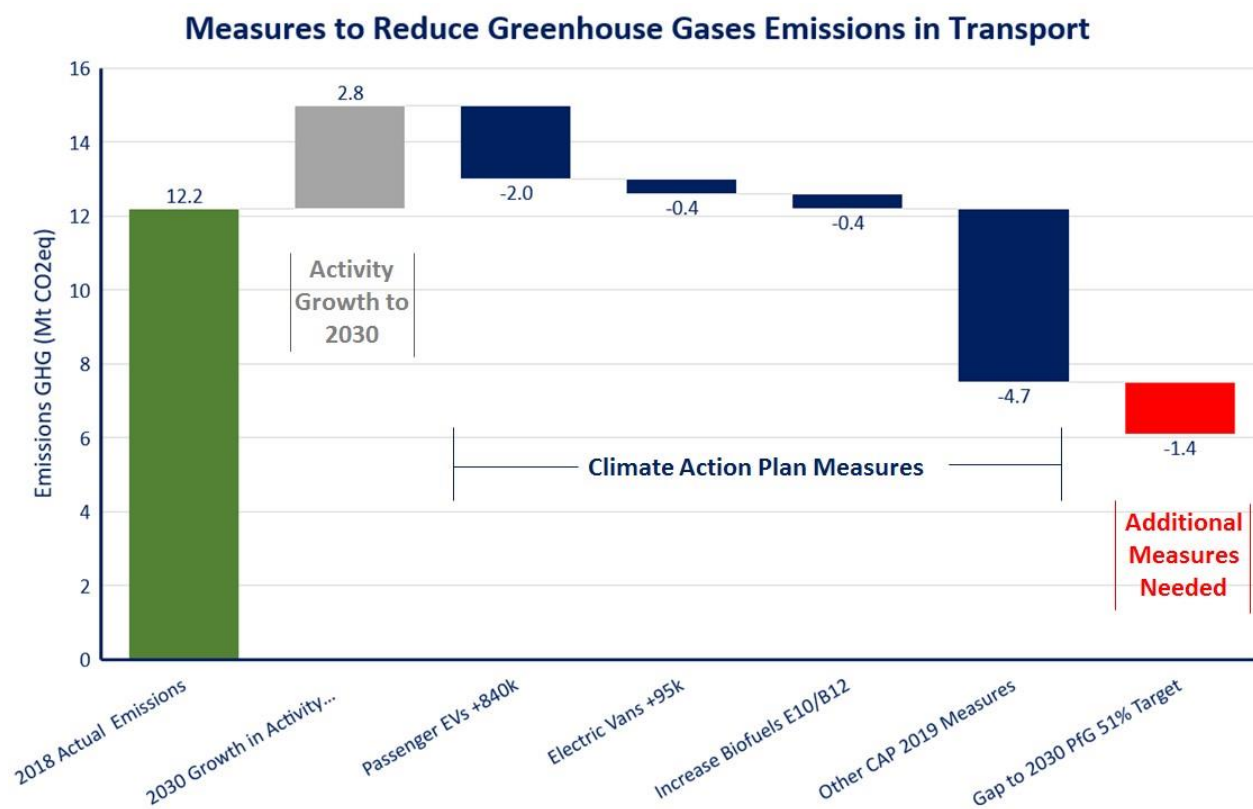


Figure 1 Reducing GHG Emissions from Transport in Ireland

There are many additional measures that can also contribute to emissions reductions, including

- HVO (hydrotreated vegetable oil), active modes (i.e. walking and cycling), remote working, and speed limit reductions,
- increasing public transport (e.g. Dublin Bus connects and extending the LUAS to Finglas), changes to public transport (electrification of rail, hybrid rail), and
- specific measures for heavy goods vehicles (reform of diesel rebate scheme, incentivised driver training, changing the allowable weight / length limits).

Measure	Description	Emissions Avoided in 2030 (Mt)
Hydrotreated Vegetable Oil (HVO)	Blend HVO with diesel displacing 20% of diesel in road transport by 2030	1.3
Increase active modes of transport	Cycling and walking increase by 2030 to replace car journeys for up to 10% of short trips	0.2-0.6
Targeted measures for trucks	Incentivised driver training for heavy goods vehicles, reform of diesel rebate scheme and changing allowable max weights and truck lengths	0.2-0.5
Changes to public transport	Electric or hybrid trains, Dublin Bus Connects and extension of LUAS to Finglas by 2030	0.2-0.3
Working from home	Up to half of workers living more than 25 km work from home by 2030	0.1-0.3
Reduce speed limits	Reduce speed limit on motorway from 120 to 100 km/h	0.1-0.2

Table 1 Estimated GHG Savings from Additional Possible Measures

Table 1 summarises a number of possible measures and associated emissions savings estimates. Please note that due to interaction effects, the emissions avoided cannot be added to estimate the combined impacts.

- **Hydrotreated Vegetable Oil (HVO)**, also known as Renewable Diesel can provide an option for rapid emissions reduction in road transport. If HVO achieves a 20% of diesel for road transport in 2030 (i.e. 5.4 TWh in transport energy), this would avoid 1.3 Mt CO₂. Note: Sweden increased blending of HVO with diesel from 0 TWh in 2011 to 14 TWh in 2018
- Increasing **active transport modes** (i.e. walking and cycling) have multiple benefits, including improved health and wellbeing, reduced traffic congestion and reduced air pollution. The CO₂ emissions avoided by up to 10% of short car trips being shifted to walking and cycling are in the range 0.2 – 0.6 Mt. This does not include the additional savings that may be achieved if electric bikes are used, which can also replace longer car trips.

- A number of targeted measures for **heavy goods vehicles** are project to avoid 0.2 – 0.5 Mt emissions per annum, based on a 9.5% fuel savings achievable from driver training, over 25% CO₂ savings per movement by changes in truck weight and length in line with other EU Member States, and encouraging fleet turnover through changes in diesel rebate scheme. reduce tonne kilometres
- Specific changes in **public transport**, including moving rail transport to using electric or hybrid trains, implementing Dublin Bus Connects and extending the LUAS can yield 0.2 – 0.3 Mt emissions savings.
- **Working from home** has many potential benefits for employees (e.g. avoiding commuting time) - if half of employees living more than 25 km from home work at home, this can avoid up to 0.3 Mt.
- Reducing the **motorway speed limit** from 120 km/h to 100 km/h could yield 0.1 – 0.2 Mt CO₂ emissions, mostly from reduced private car emissions.

More information can be provided on these measures or associated calculations on request.



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