



Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Road Emissions Model Update

Dr Andy Brown, Principal Consultant, AECOM

AECOM

Imagine it.
Delivered.



REM

Road Emissions Model
Transport Infrastructure Ireland

TII Road Emissions Model (REM)



What is the Road Emissions Model?

The Road Emissions Model quantifies the impact of interventions or policies on GHG emissions (e.g. carbon dioxide) and non-GHG emissions associated with air pollution (e.g. nitrogen dioxide and particulates).

It is aimed at calculating emissions generated from vehicles in use on the road network and then calculating air quality impacts in close proximity to roads.



Assessing
project impacts



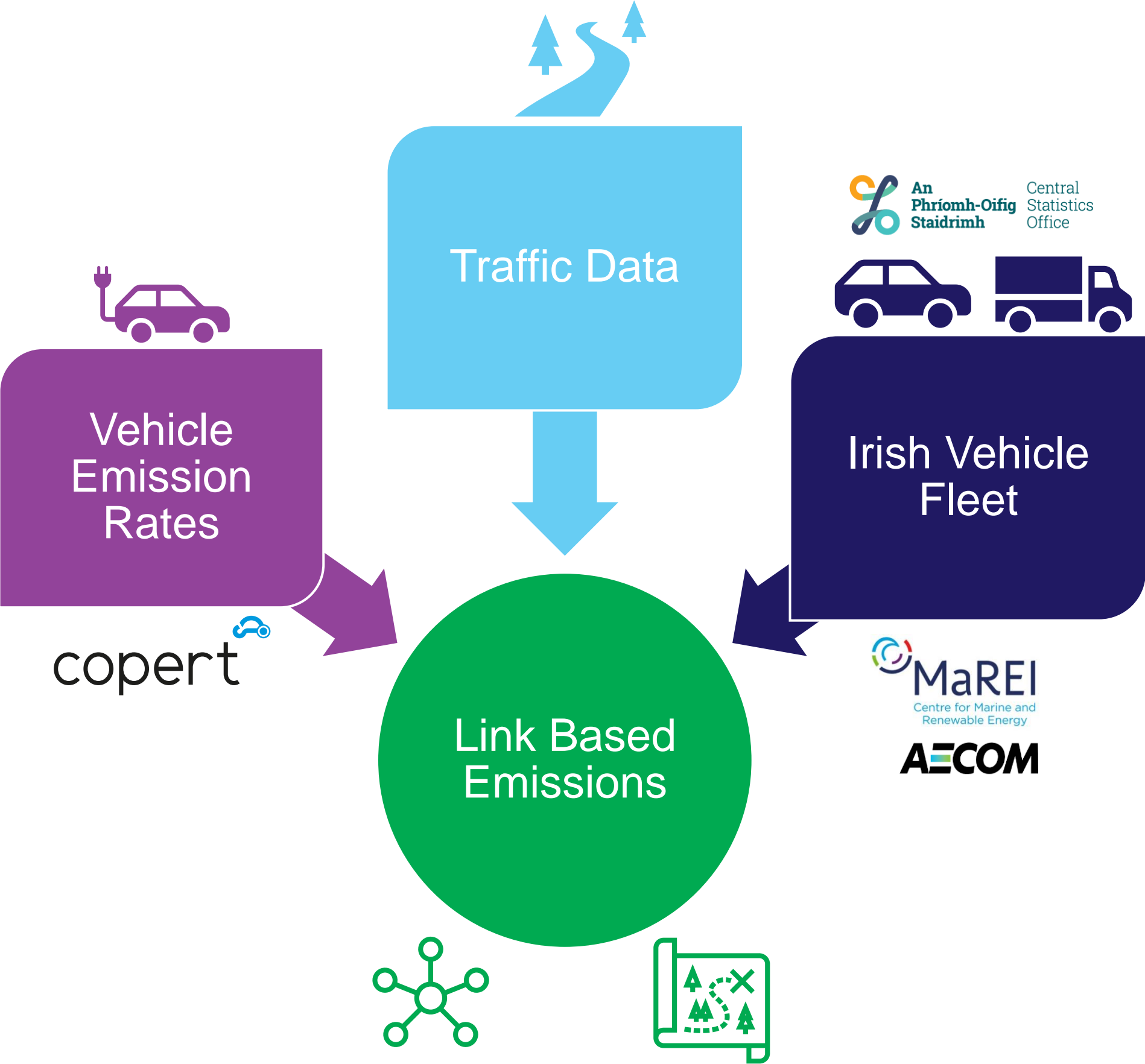
Policy testing &
advice



Monitoring &
Communications

Access managed by: climatetools@tii.ie

TII Road Emissions Model (REM)



Publication of update Model Development Report

- Scoping & technical details of the latest update to the REM (v1.0):
 - Updates to latest emission rates (COPERT) and alignment to vehicle classifications
 - Baseline car fleet validation update to 2022
 - Updated car fleet projections to 2050
 - New car fleet projection representing proposed EU 2035 ICE vehicle sales ban
 - Significant upgrade to freight stock model & projections





Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Freight Update

LGV & HGV

AECOM

Imagine it.
Delivered.



REM

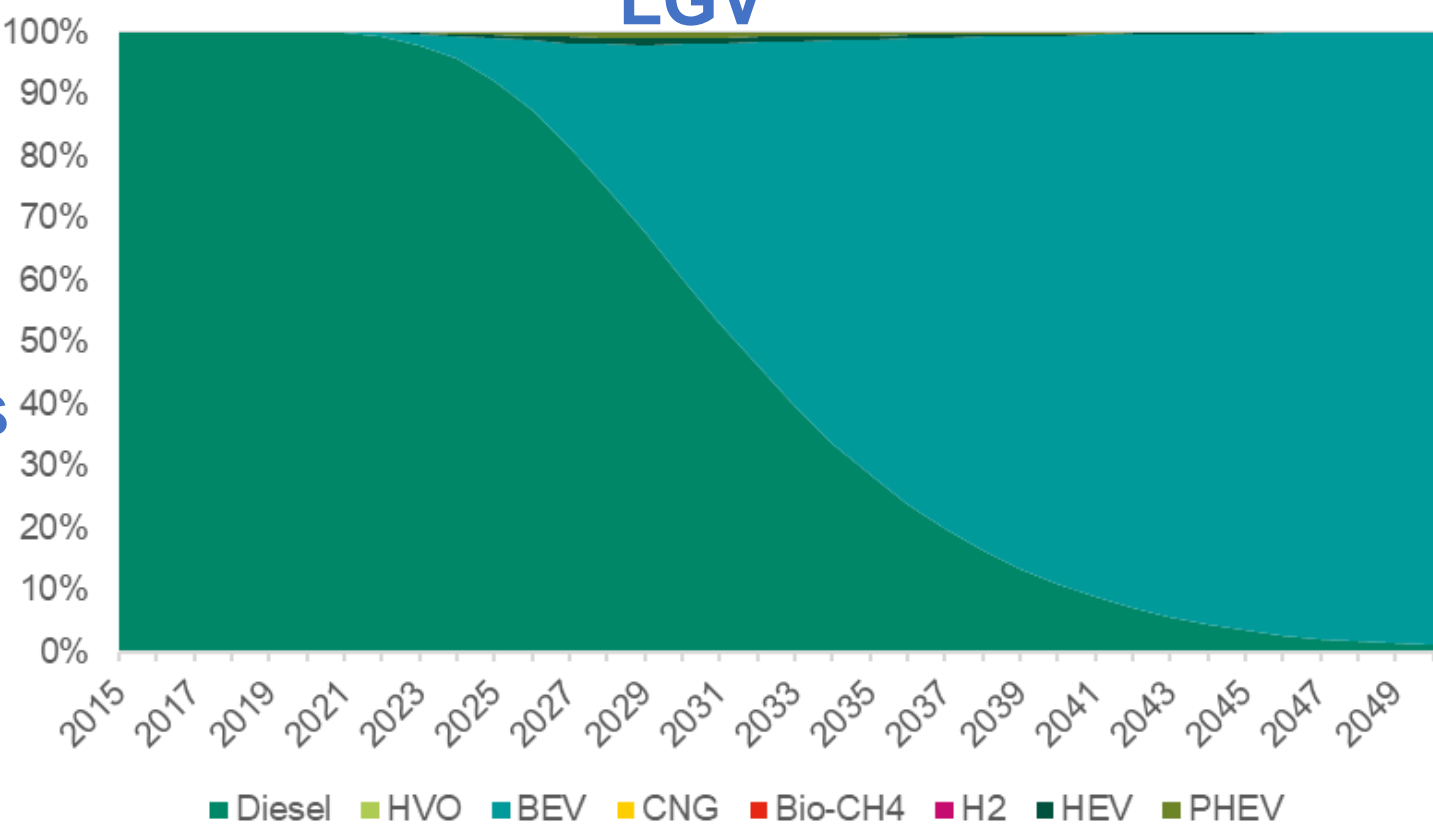
Road Emissions Model
Transport Infrastructure Ireland

Freight Projection Scenarios

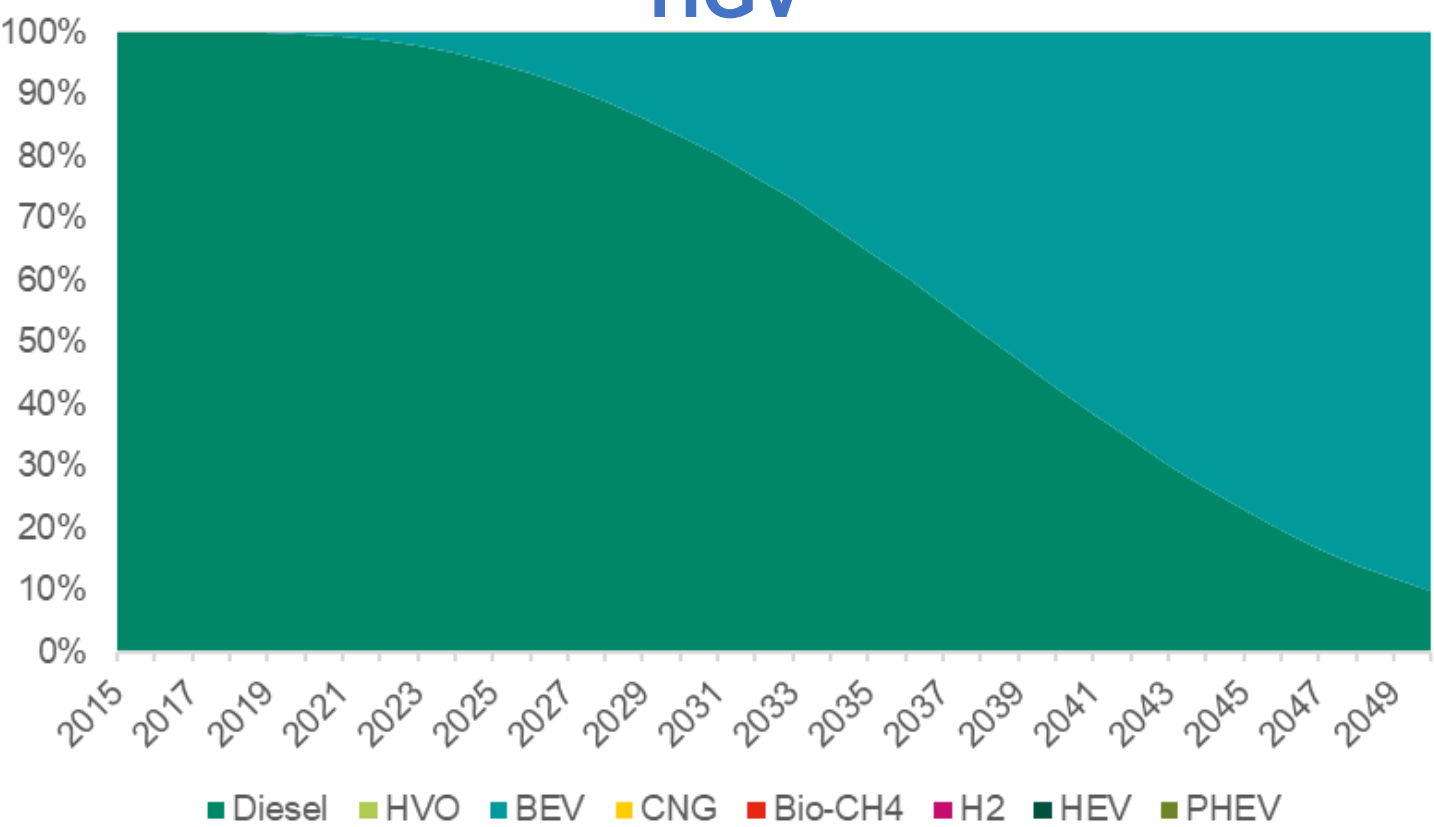
Scenarios	Light Goods Vehicles	Heavy Goods Vehicles
EU Targets	2035 ICE new sales ban Assumed to prioritise EV	45% emissions reduction from 2030 65% emissions reduction from 2035 90% emissions reduction from 2040 Assumed to prioritise EV
CAP	20k EV vans in 2025 20% EV LGV (95k) in 2030 Balancing % vs stock	700 EV HGV in 2025 30% new EV HGV (3500) in 2030
BaU Low Ambition	Review of market capacity for different technologies HVO enabling max 30% of vkm Variations in fuel technology for weight categories	
BaU High Ambition	As low ambition with ~20% higher BEV new sales	

Decarbonisation Pathways – Policy Targets (EV Priority)

LGV

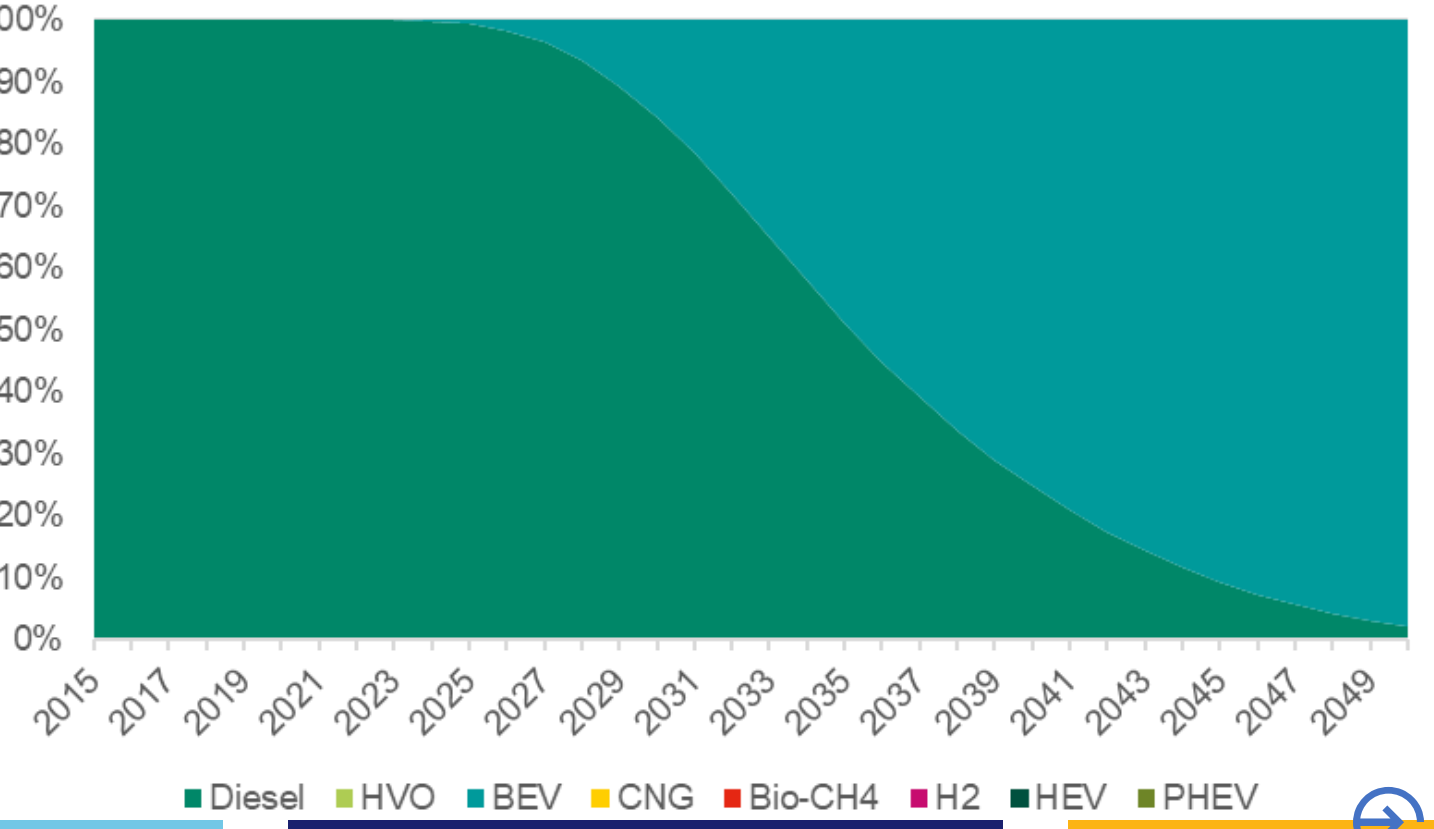
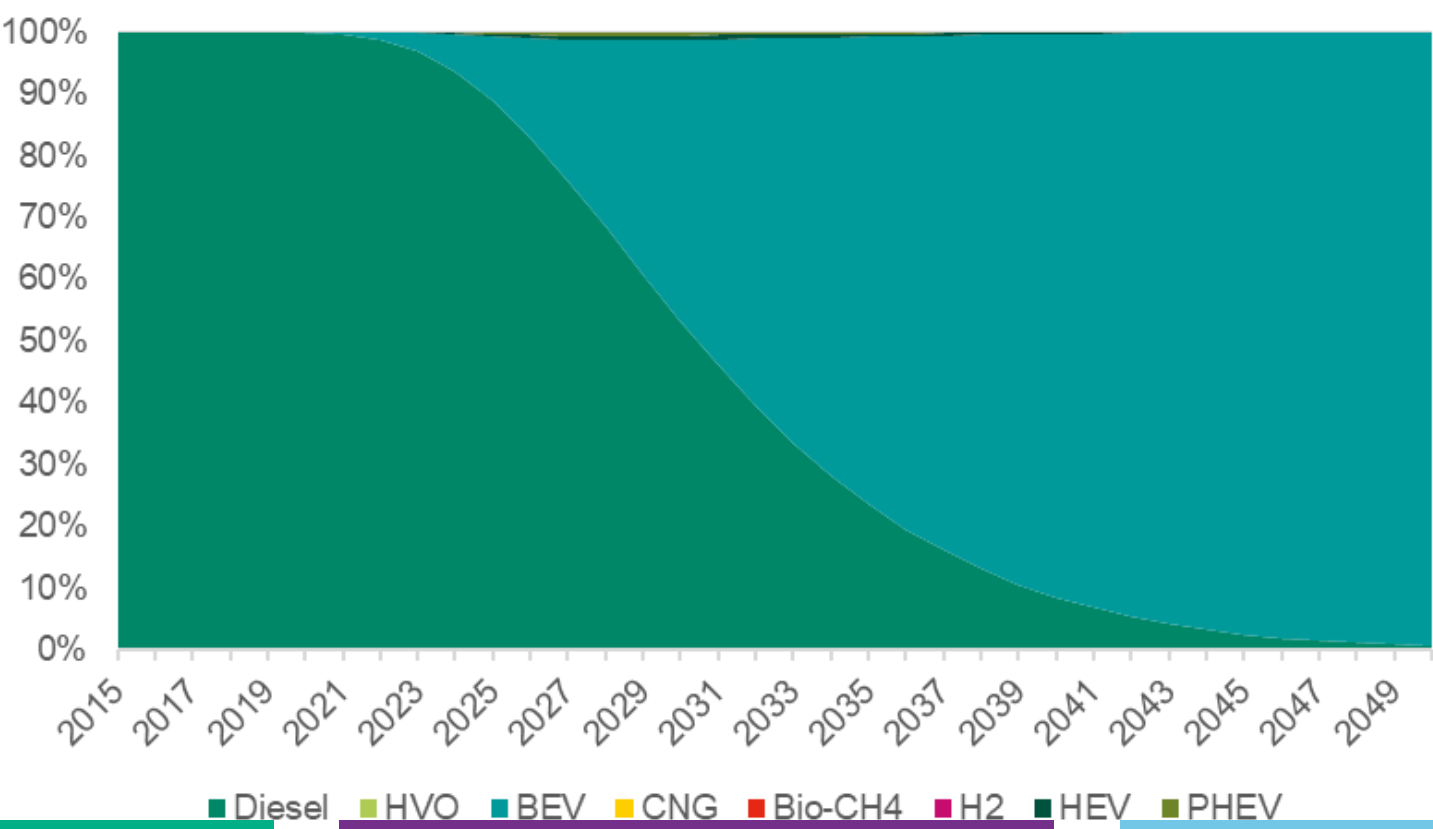


HGV



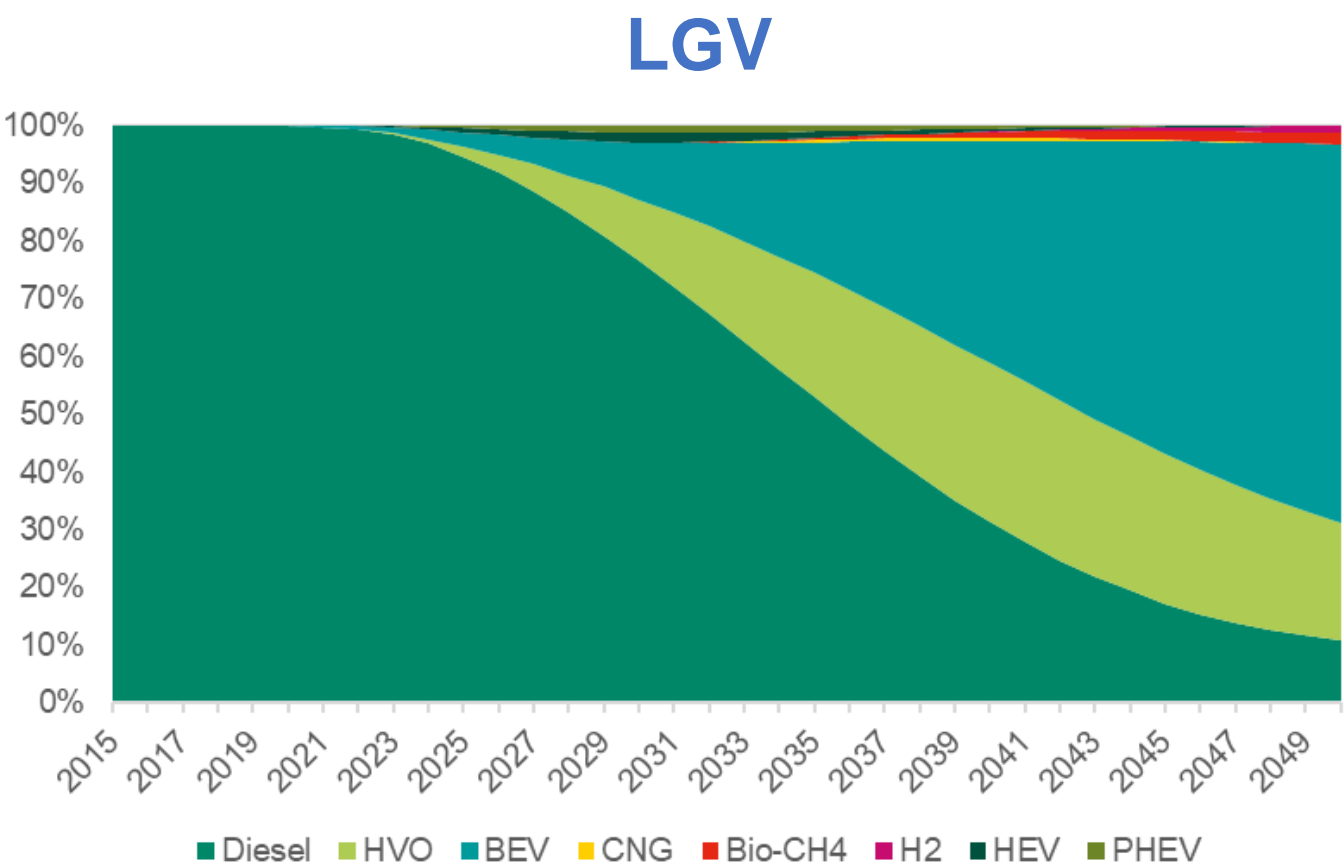
EU Targets

CAP

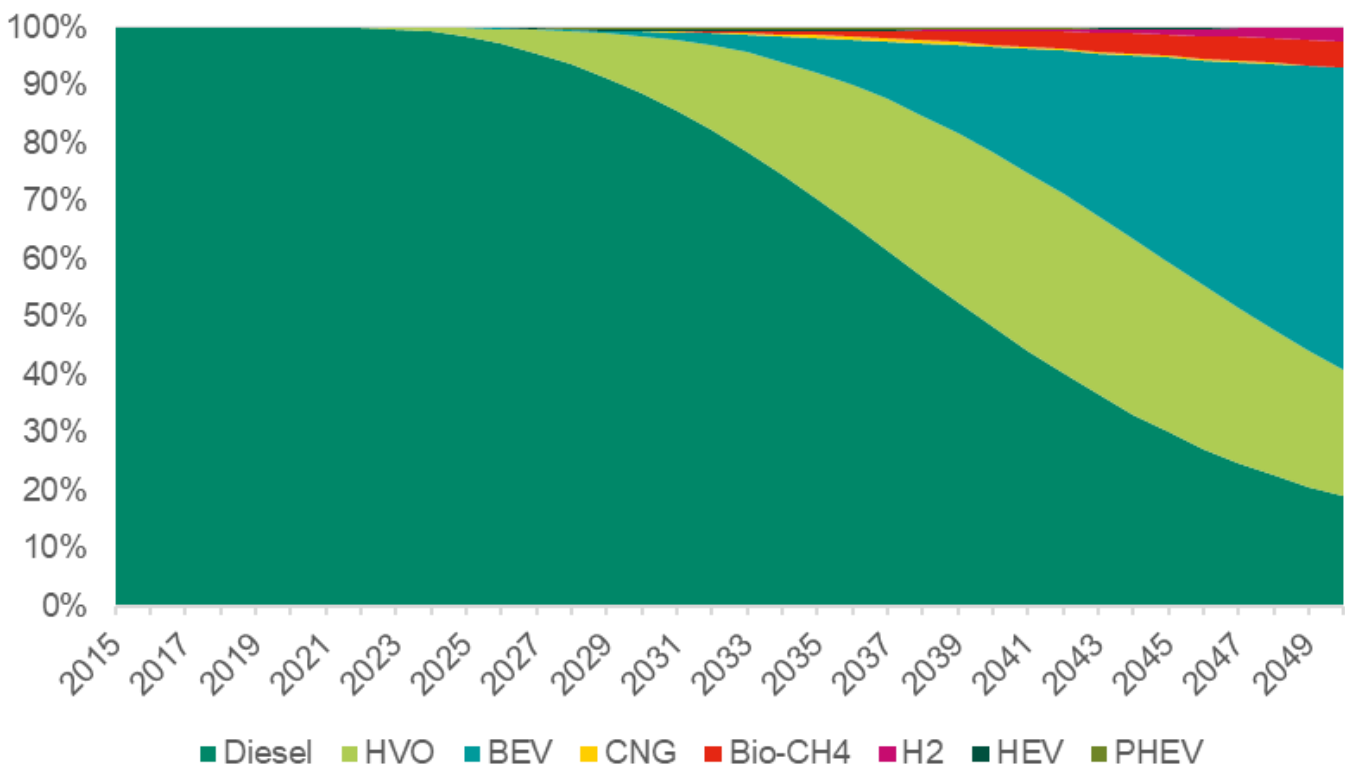


Decarbonisation Pathways – BaU (Mixed Technology)

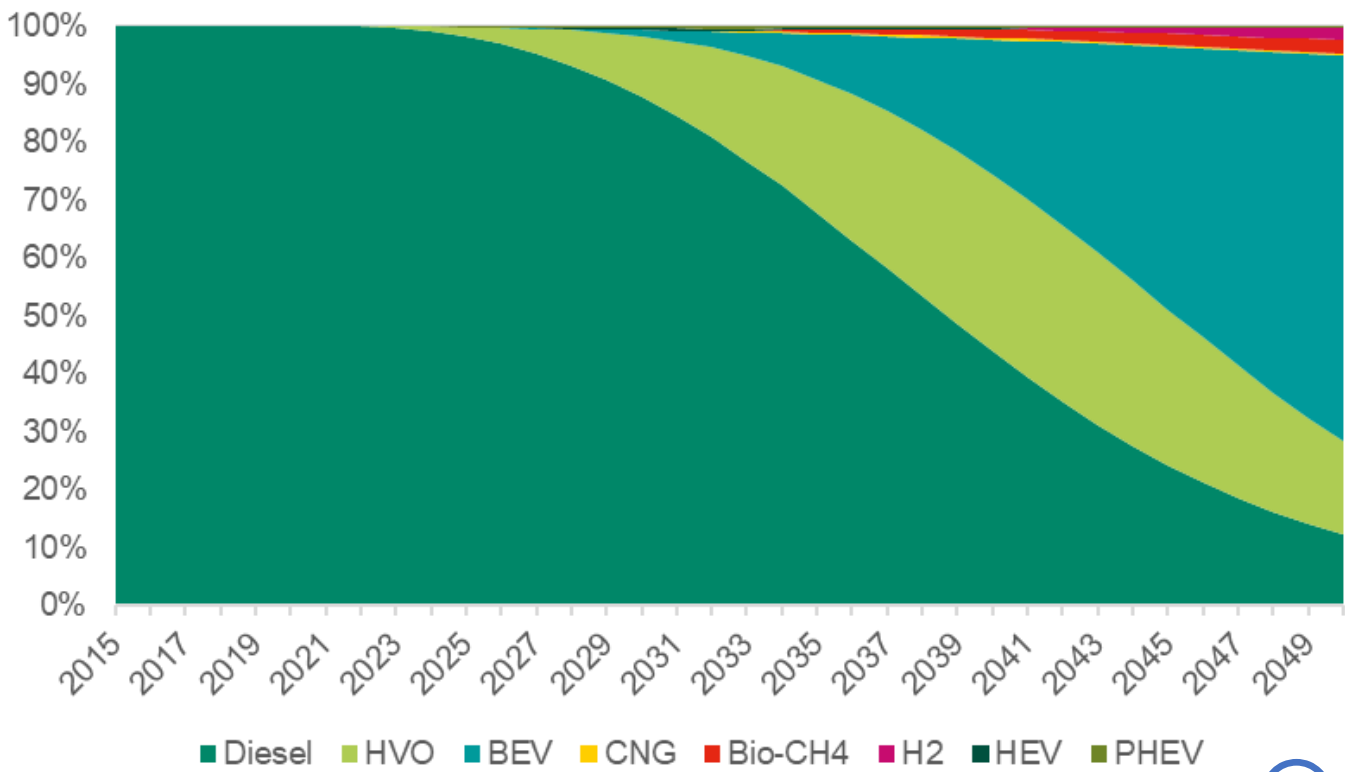
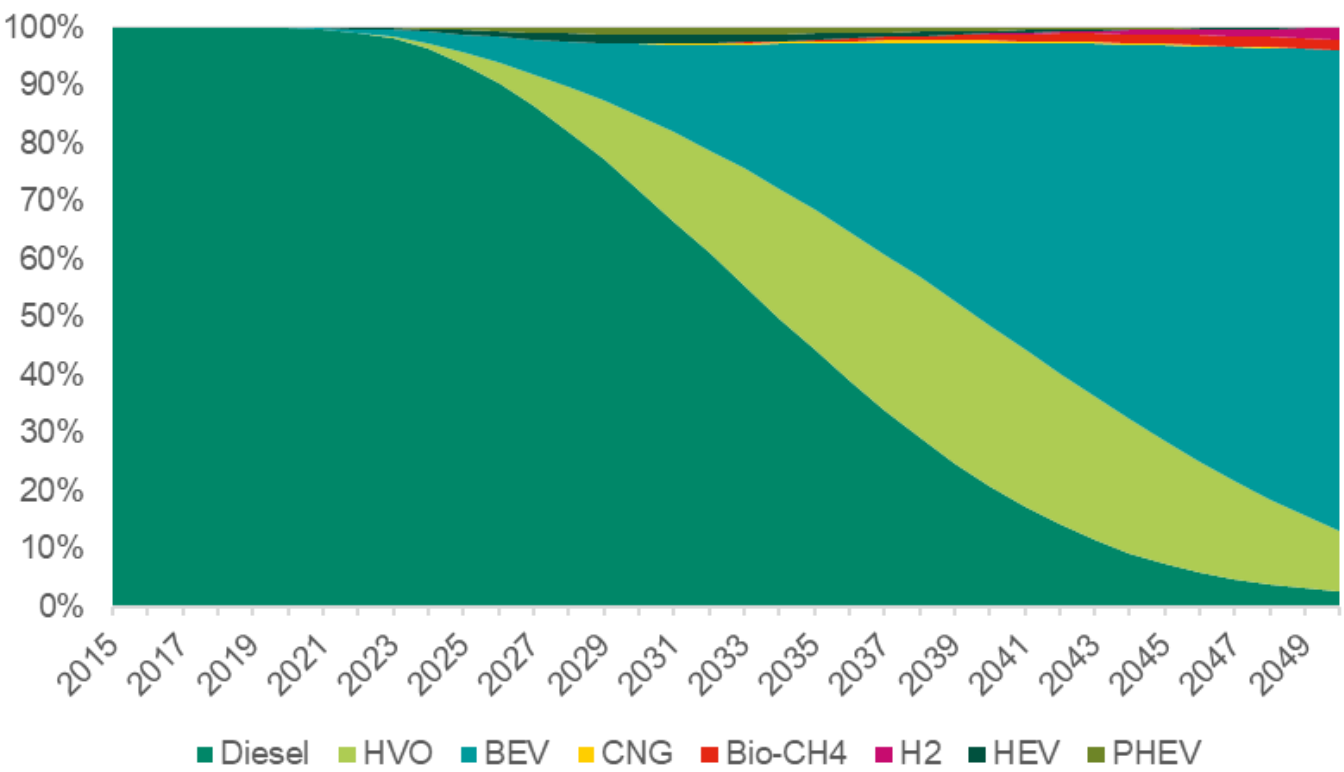
BaU Low
Ambition



HGV



BaU High
Ambition





Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Car Update

ICE & Hybrid

AECOM

Imagine it.
Delivered.



REM

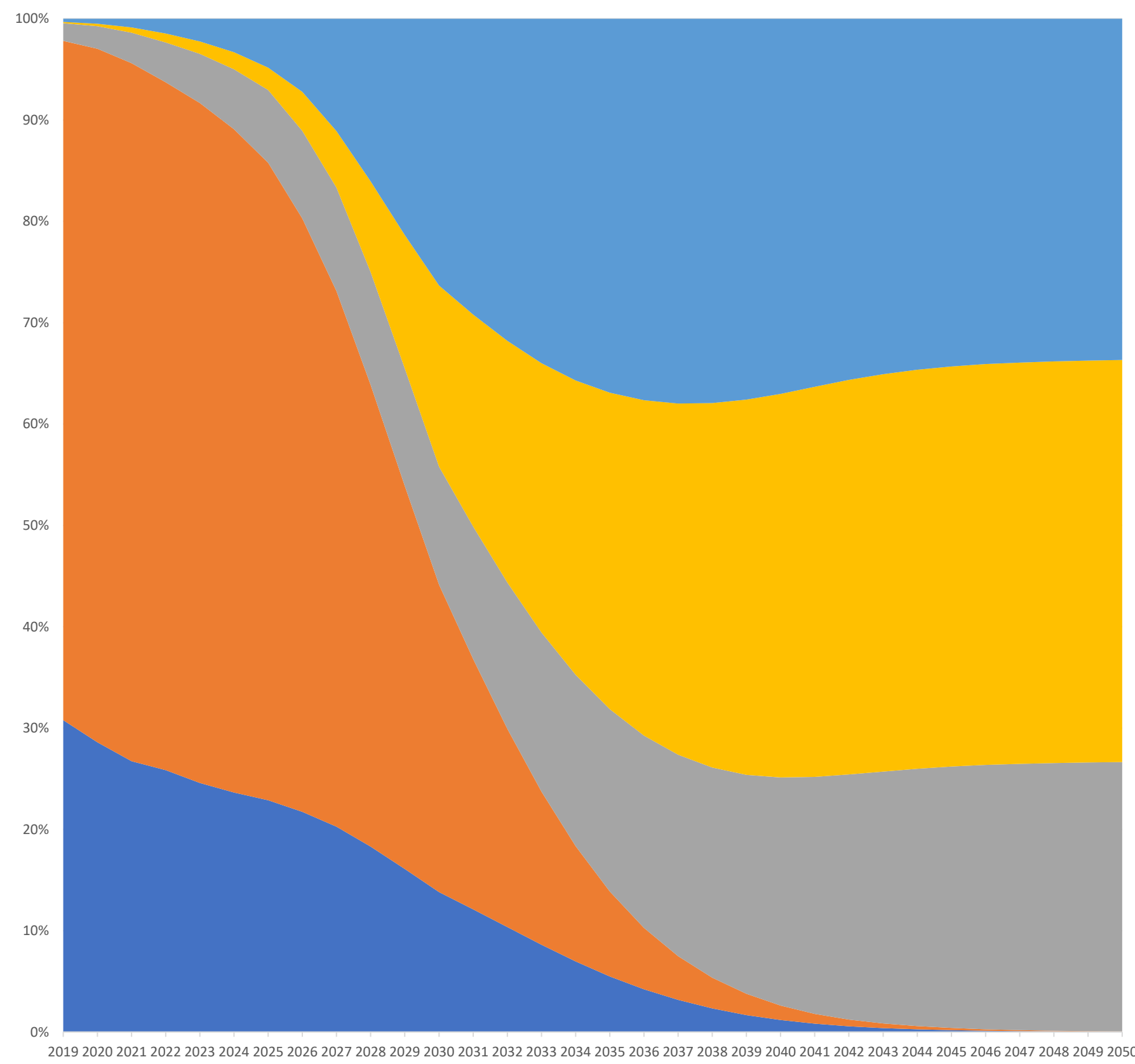
Road Emissions Model
Transport Infrastructure Ireland

Car Projection Scenarios

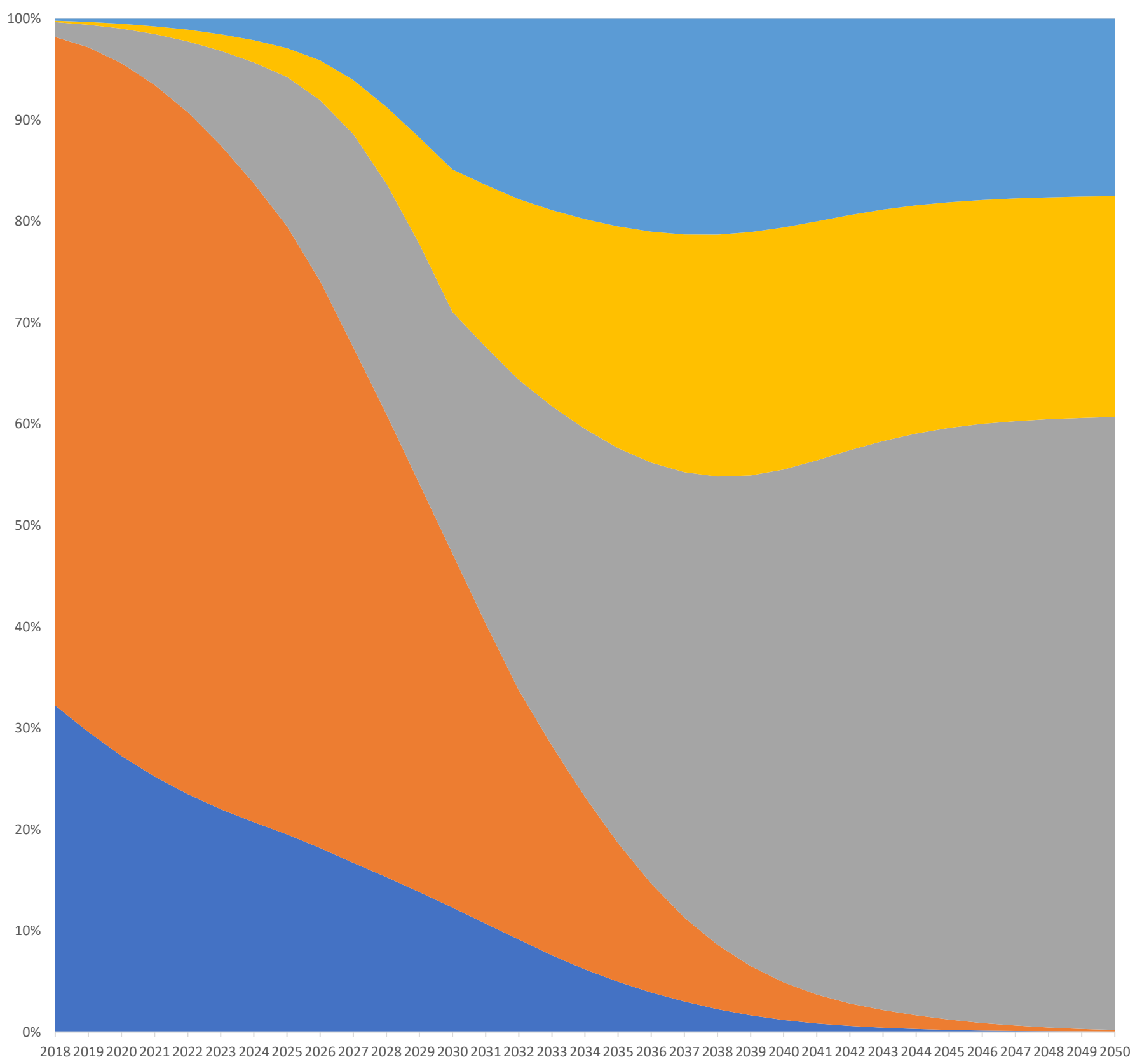
Scenarios	Basis
Business as Usual Defined by UCC	The trajectory of sales of new cars assumes that the new car sales shares of PHEVs, Hybrid and BEVs sales continue at 2018 levels
Intermediate Calculated by AECOM	Linear interpolation of sub-classifications in BaU:CAP
Climate Action Plan Defined by UCC	Based on achieving 151,000 EV and PHEVs by 2025 and 840,000 EV and PHEVs by 2030.
<u>New scenario</u> 2035 ICE new car sales ban	Amended from UCC 2030 ICE new sales ban: <ul style="list-style-type: none">- Linear decrease new sales of petrol and diesel sales to 0% in 2035.- PHEV / HEV increase to ~2029 and then decrease to 0% in 2035.- Remaining new sales as BEV.

National Projections, vkm Breakdown

CAP Update



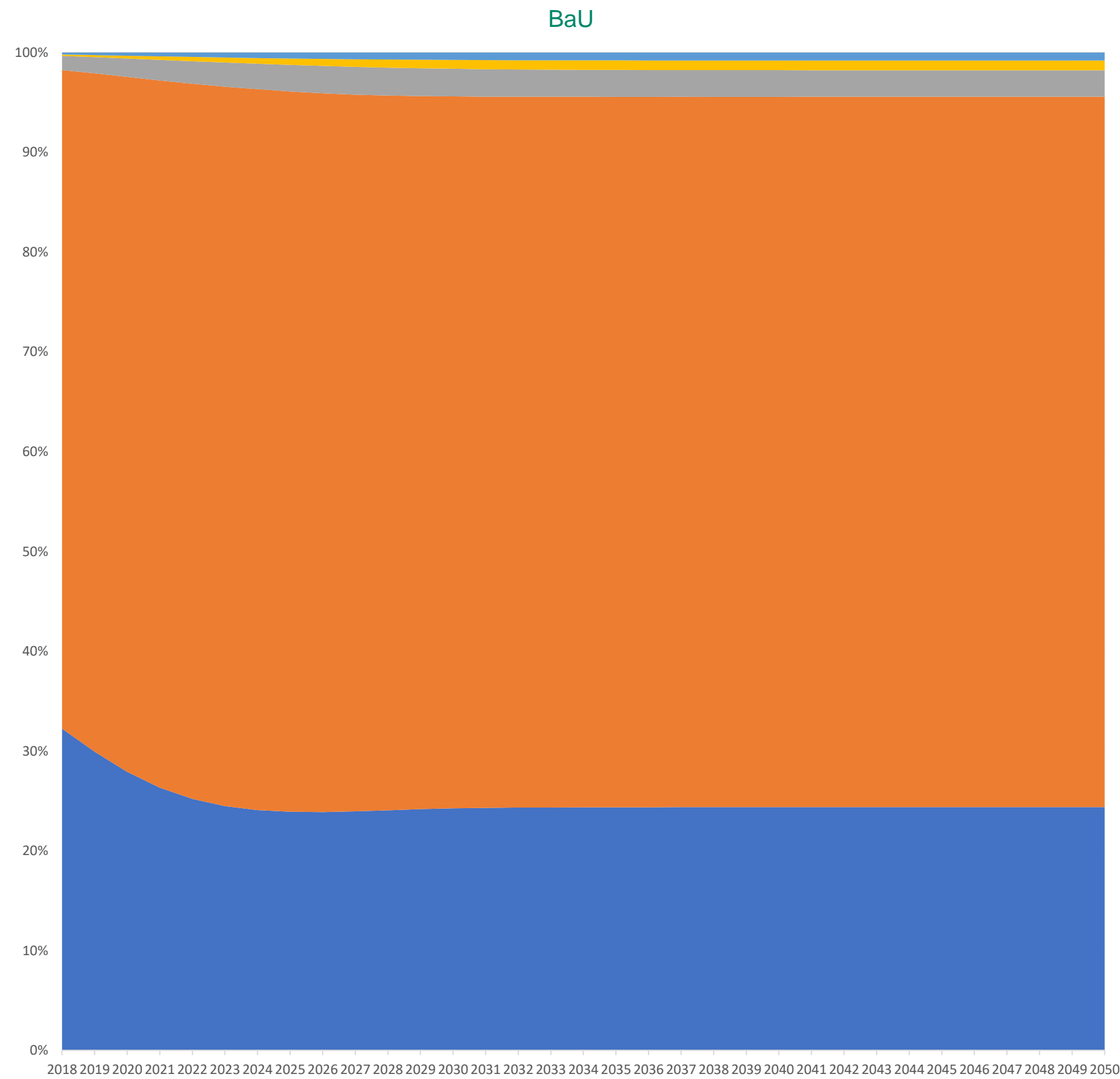
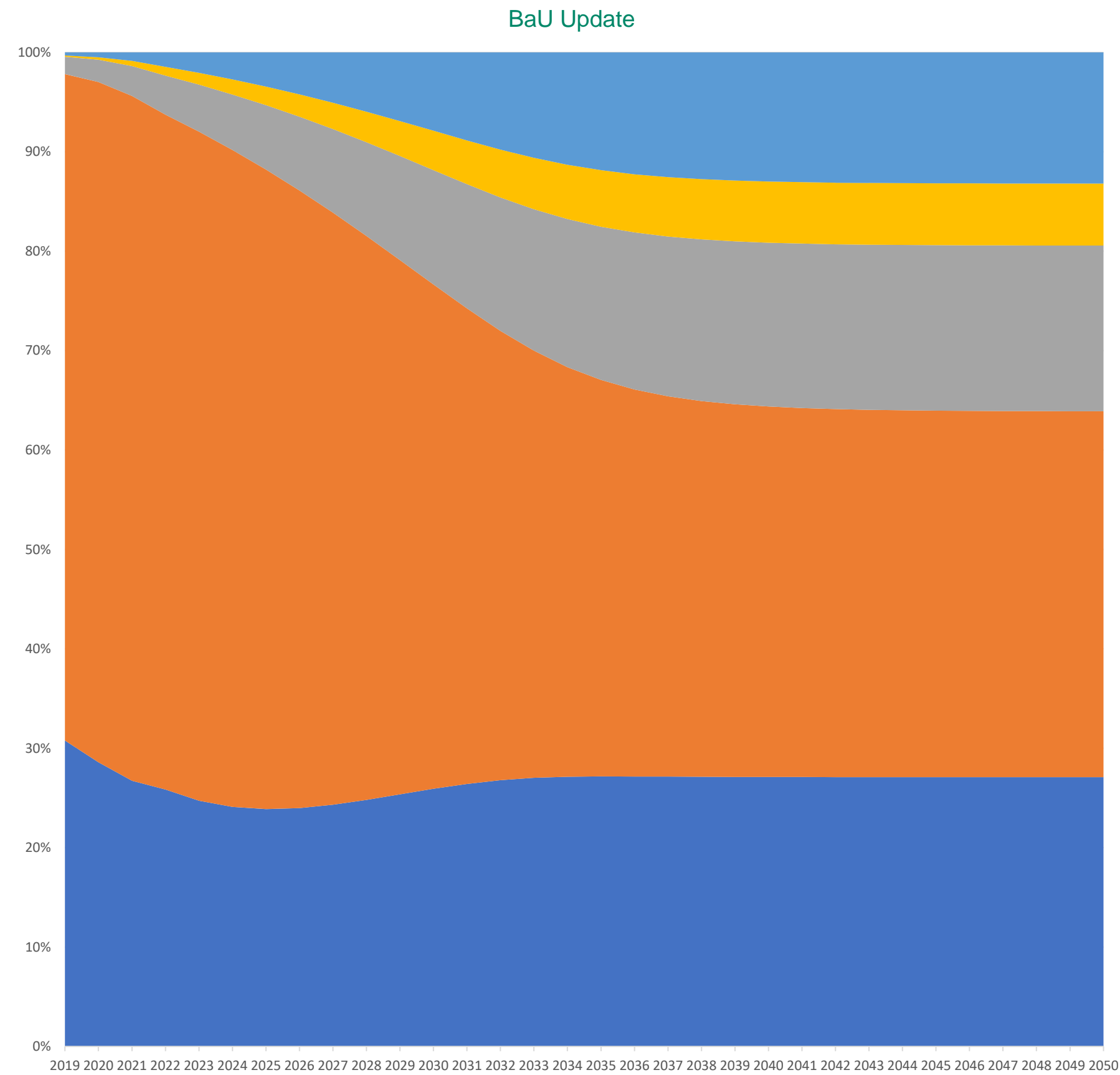
CAP



Petrol Diesel HEV PHEV BEV

Petrol Diesel HEV PHEV BEV

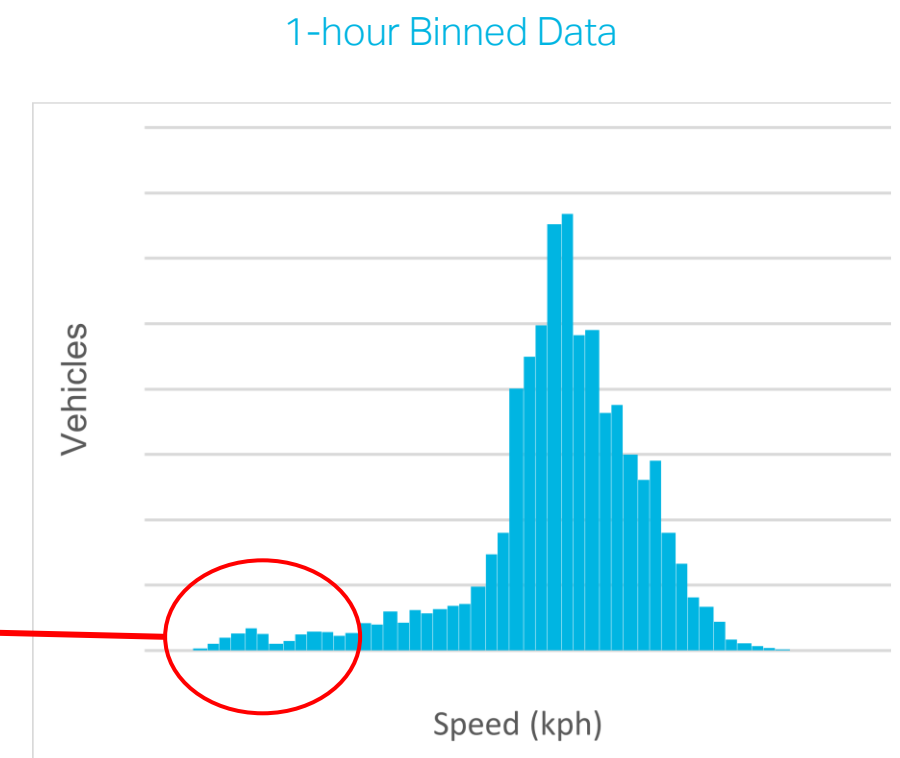
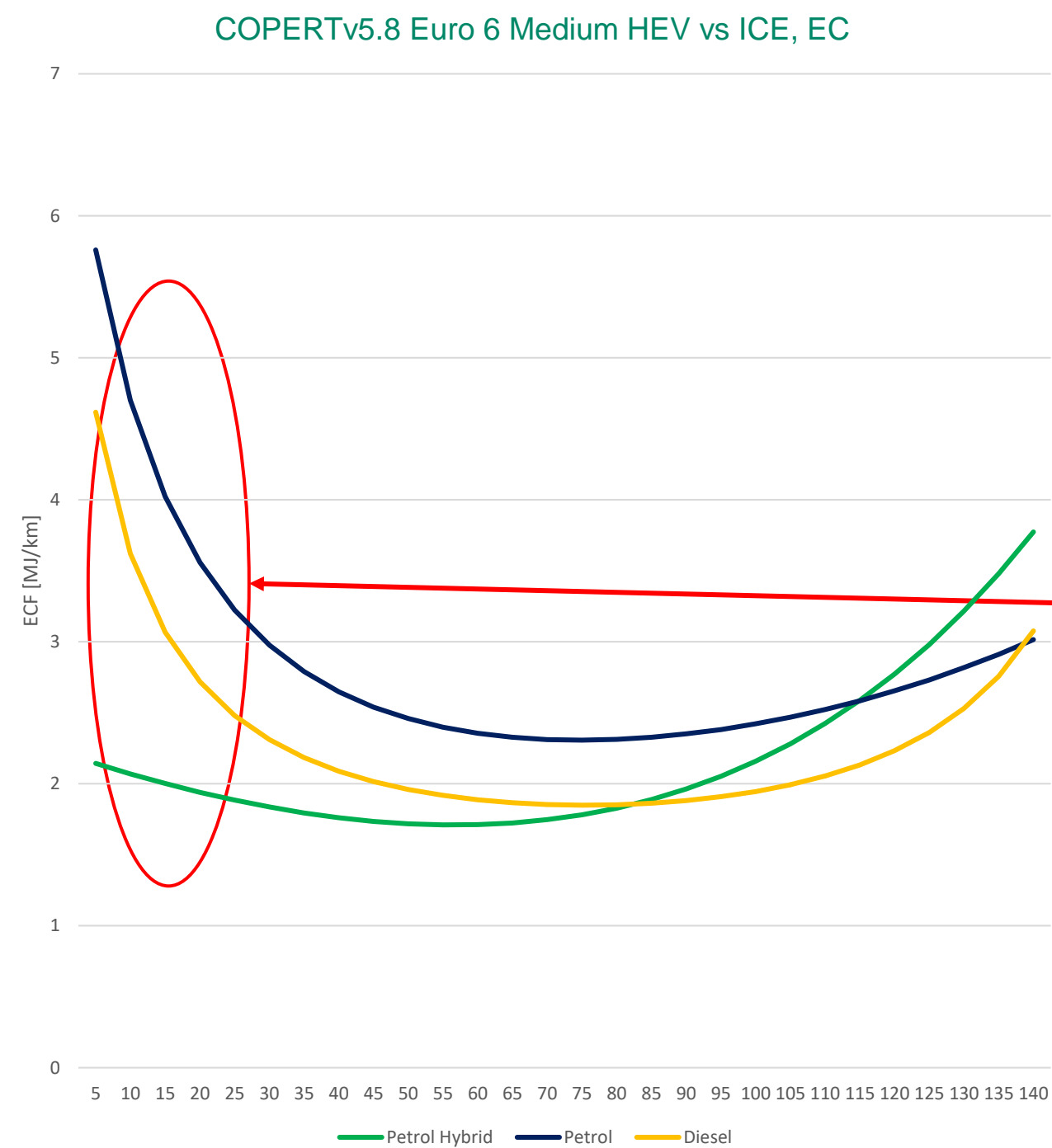
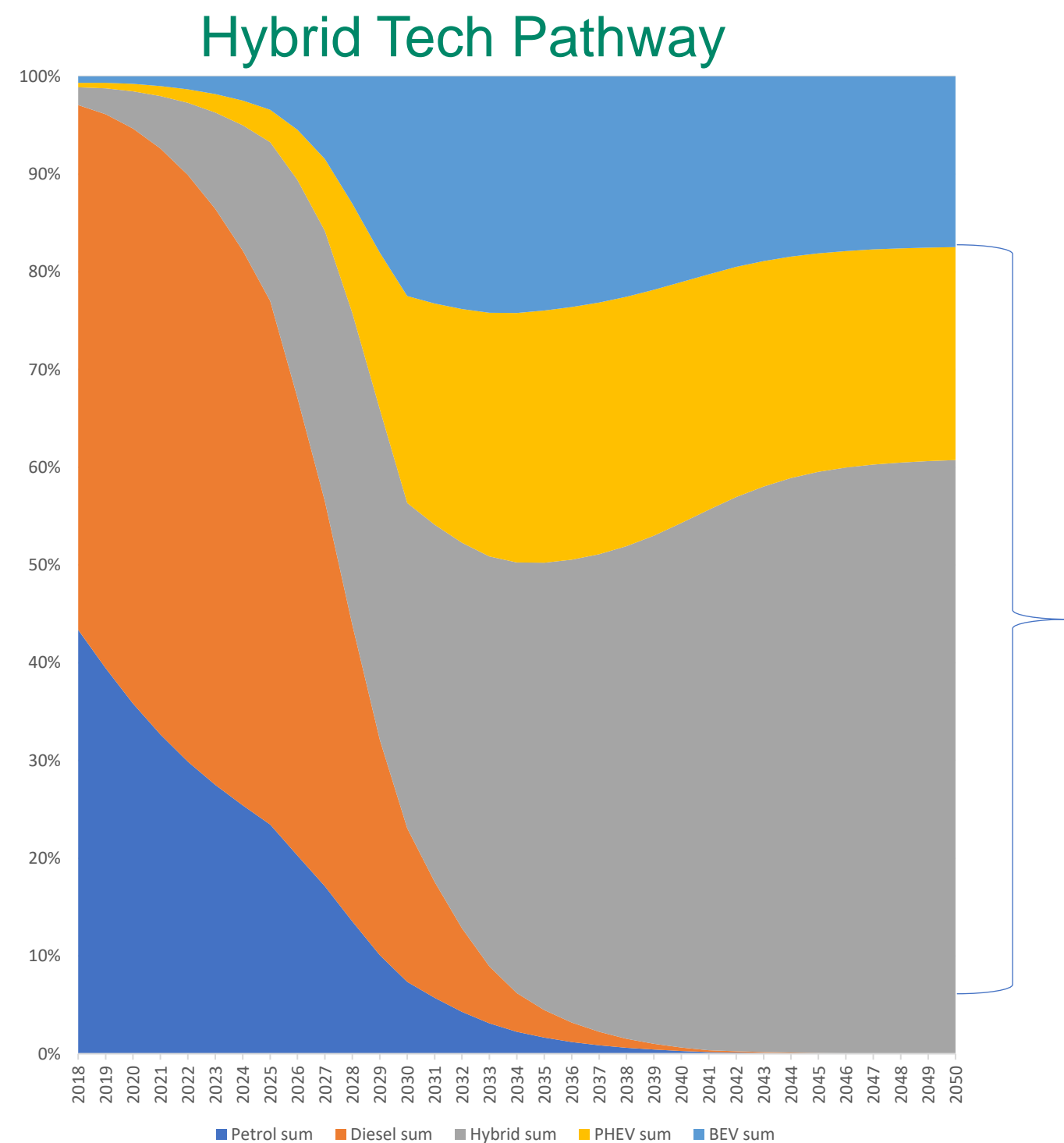
National Projections, vkm Breakdown



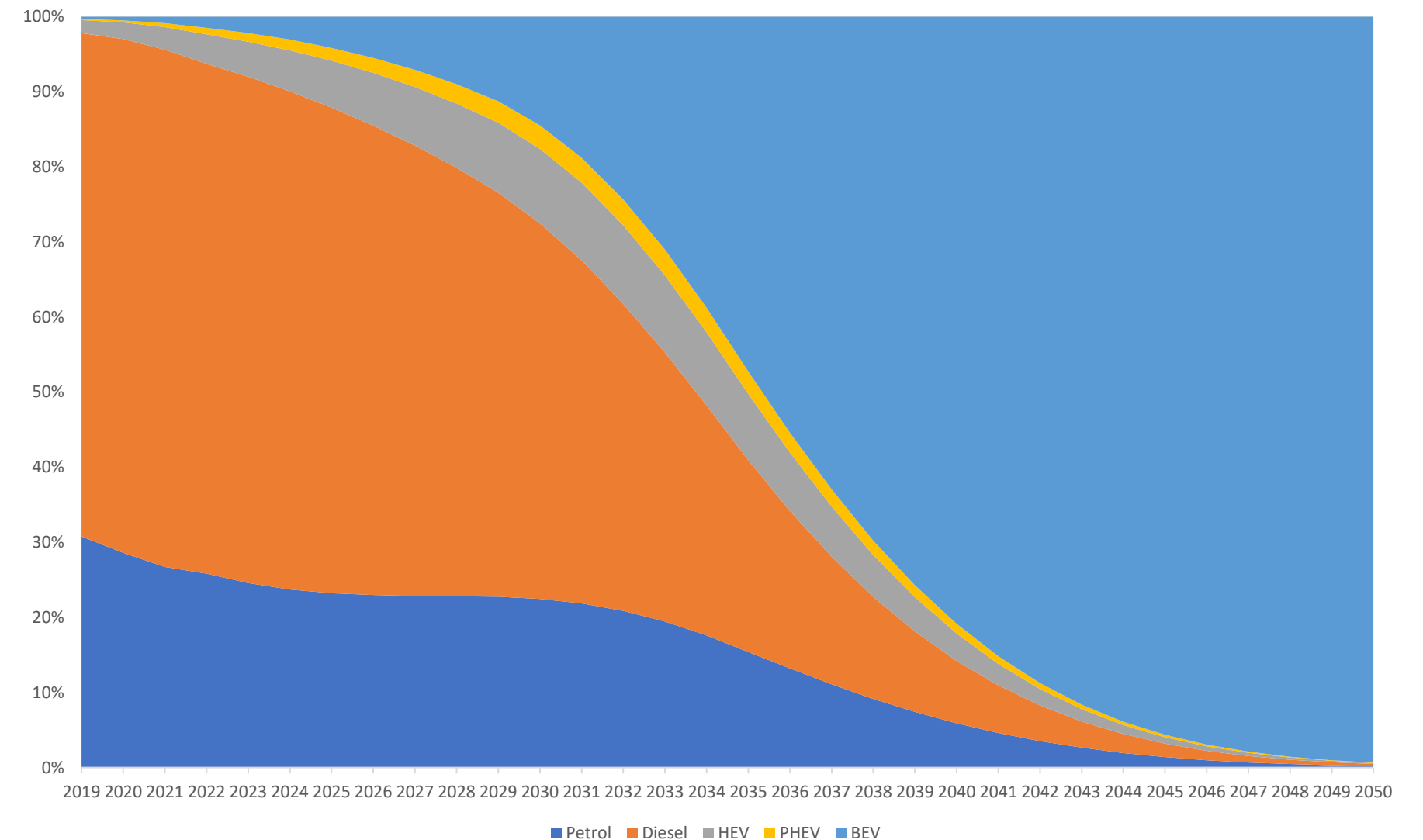
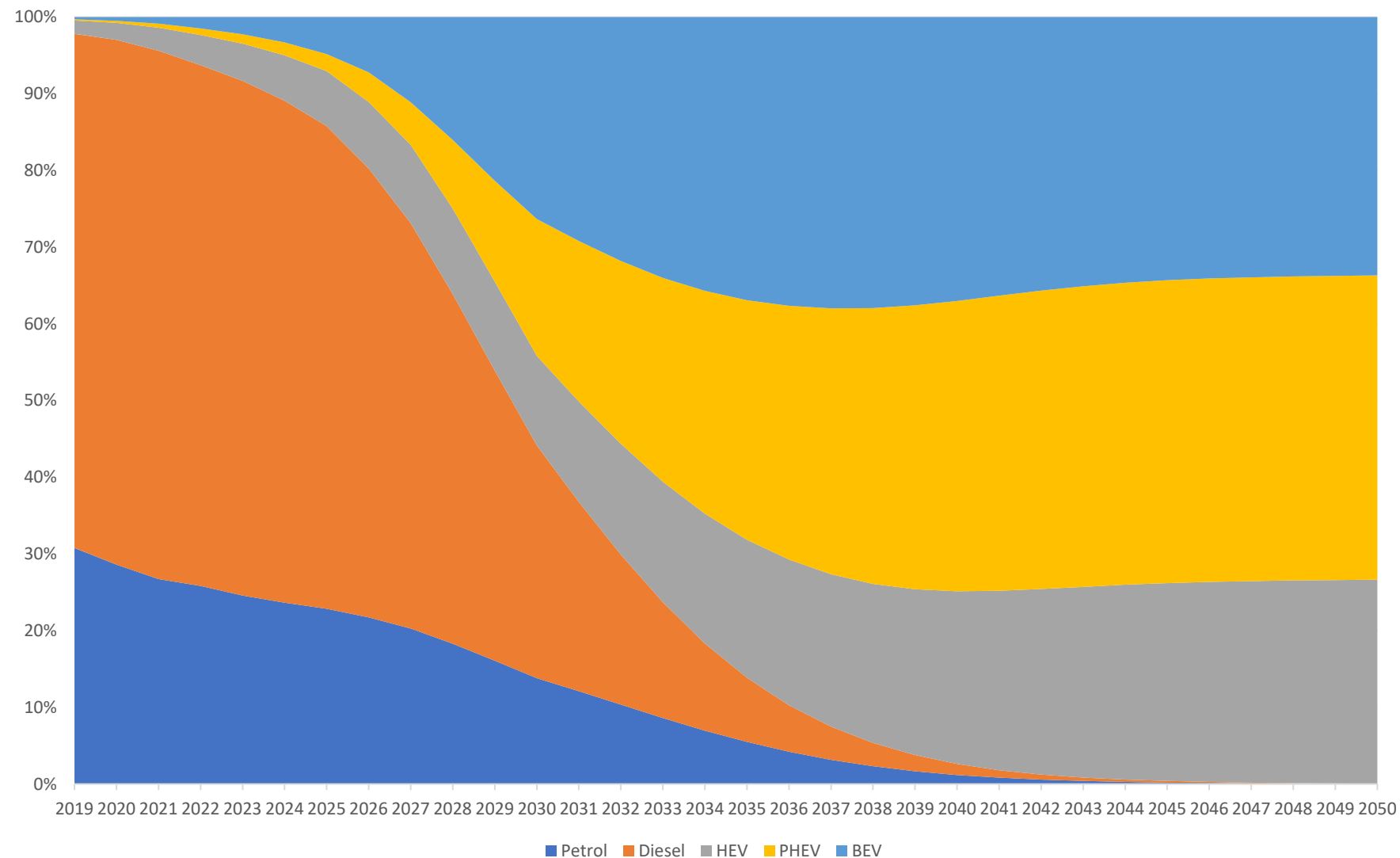
Petrol Diesel HEV PHEV BEV

Petrol Diesel HEV PHEV BEV

“Electrified” Emissions & Hybrid Technology



ICE Sales Ban



CAP

- The proportion of diesel and petrol cars decreases steeply in future to near zero in 2041.
- The proportion of BEV increases until approx. 2035 but then decreases slightly as HEV and PHEV become more favourable
- In 2050 the overall breakdown of cars was predicted to be split relatively evenly between BEV, HEV and PHEV.

2035 ICE Sales Ban

- The proportion of diesel and petrol cars decreases in future to near zero in 2050.
- HEV and PHEV are a marginal component reaching zero in 2050.
- The proportion of BEV increases steadily until near 100% in 2050.

Using the updates in the REM



TIIV AECOM

Introduction

Input Parameters

Downloads

Quick User Guide

Change Control

Download Full Guide

REM Road Emissions Model
Transport Infrastructure Ireland

TIIV Road Emissions Model

Welcome to the TIIV Road Emissions Model.

The model enables practitioners to undertake strategic scale analysis of greenhouse gas and non-greenhouse gas pollutants from road vehicles.

Use the sidebar menu on the left hand side to navigate around the tool, enter parameters in the Input Parameters menu, once sufficient information is added, hit the run button to advance to the Output menu.

Input file templates can be downloaded in the Downloads menu, along with output data and QA files.

Specification for input templates is outlined in the Quick User Guide tab

TIIV AECOM

For technical issues please contact [REM Tool Support](#)





Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Summary

Key Outcomes



Imagine it.
Delivered.



REM

Road Emissions Model
Transport Infrastructure Ireland

Summary

- Updates to car and freight fleet have been made to capture emerging policy and sales trends
- Updates to emissions, capturing changes from COPERT v5.8 have also been fed into the REM
- External peer review undertaken by Prof. Brian Caulfield
- Project team coordinating with update of TII Air Quality Assessment Standard & Overarching Technical Document
- REM is integrated into TII Project Appraisal Guidelines CBA and MCA/TAA processes
- Planned to run technical webinar for REM registered users
- Technical support available REManCarbonToolSupport@aeacom.com

