An Roinn Iompair
Turasóireachta agus Spóirt
Department of Transport,
Tourism and Sport

Lower Emitting Vehicle Uptake Scenarios – Potential Impacts

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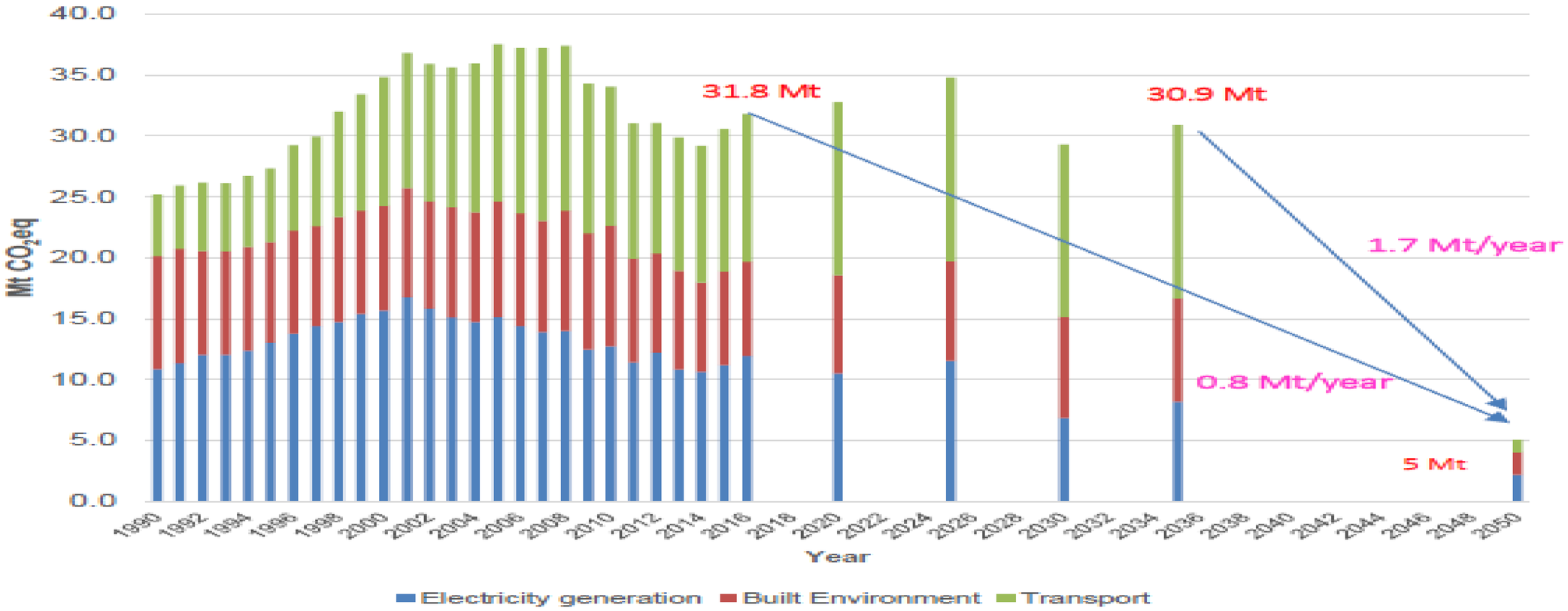
Presentation Overview

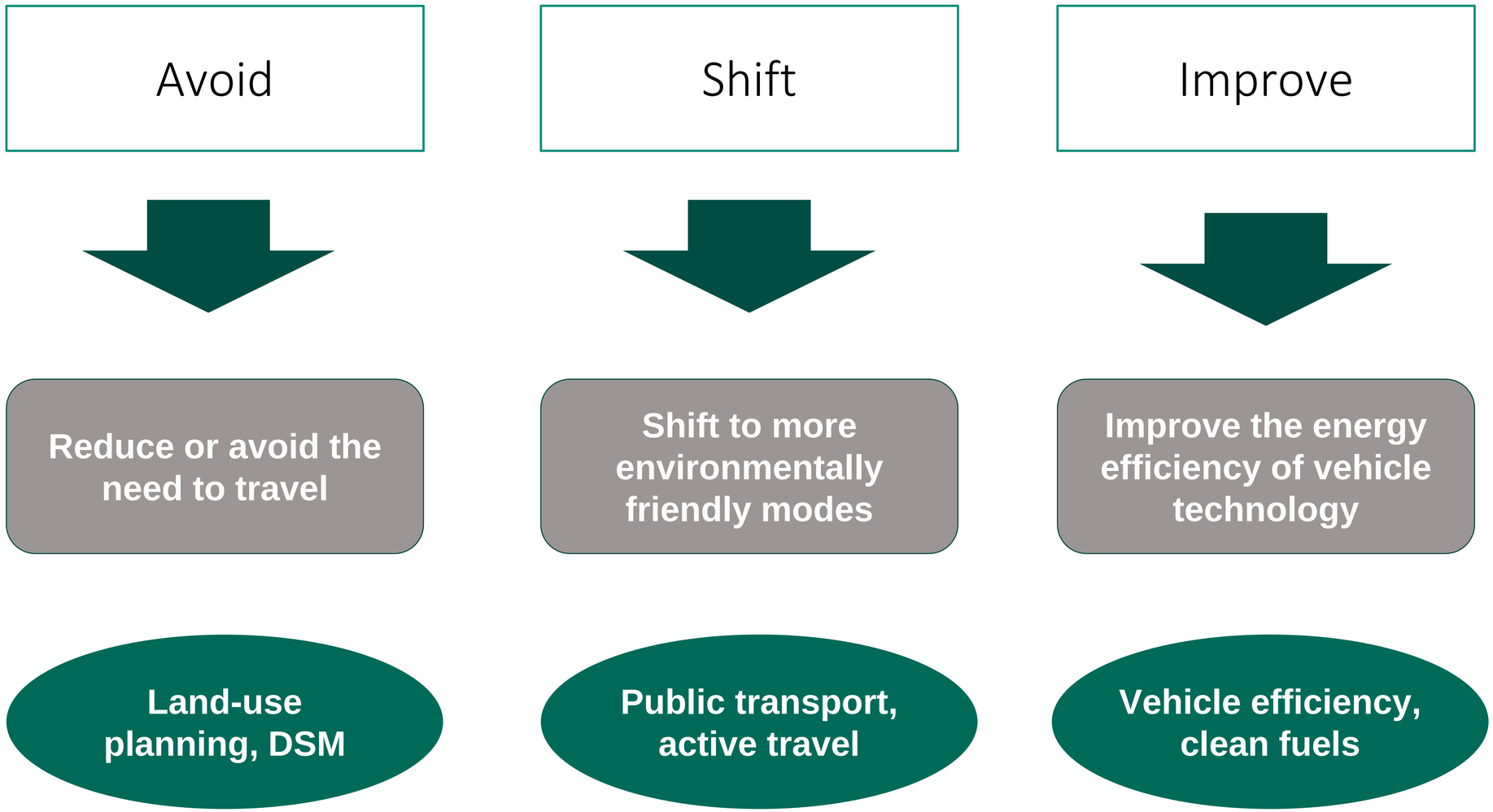
1. Background and context
2. Irish Policy
3. Model
4. Scenarios
5. Impacts
6. Future policy considerations and next steps

Background and Context

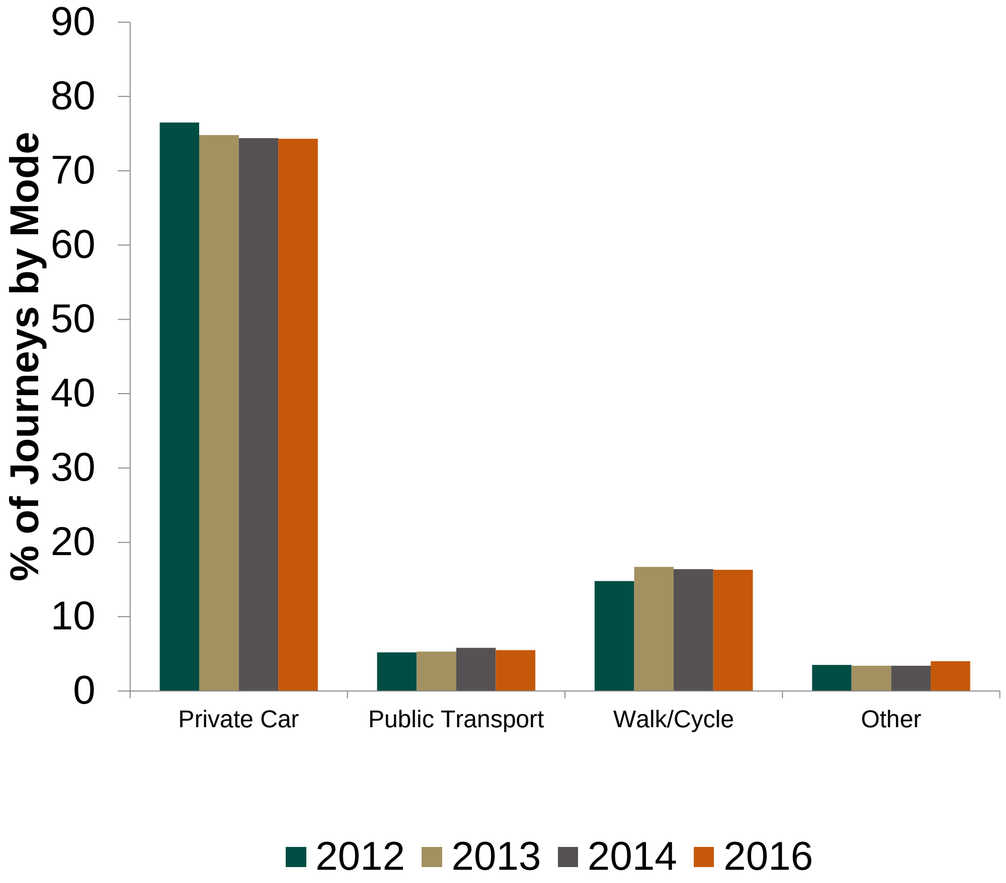
- Transport sector will need to make a significant contribution to Ireland's decarbonisation commitments.

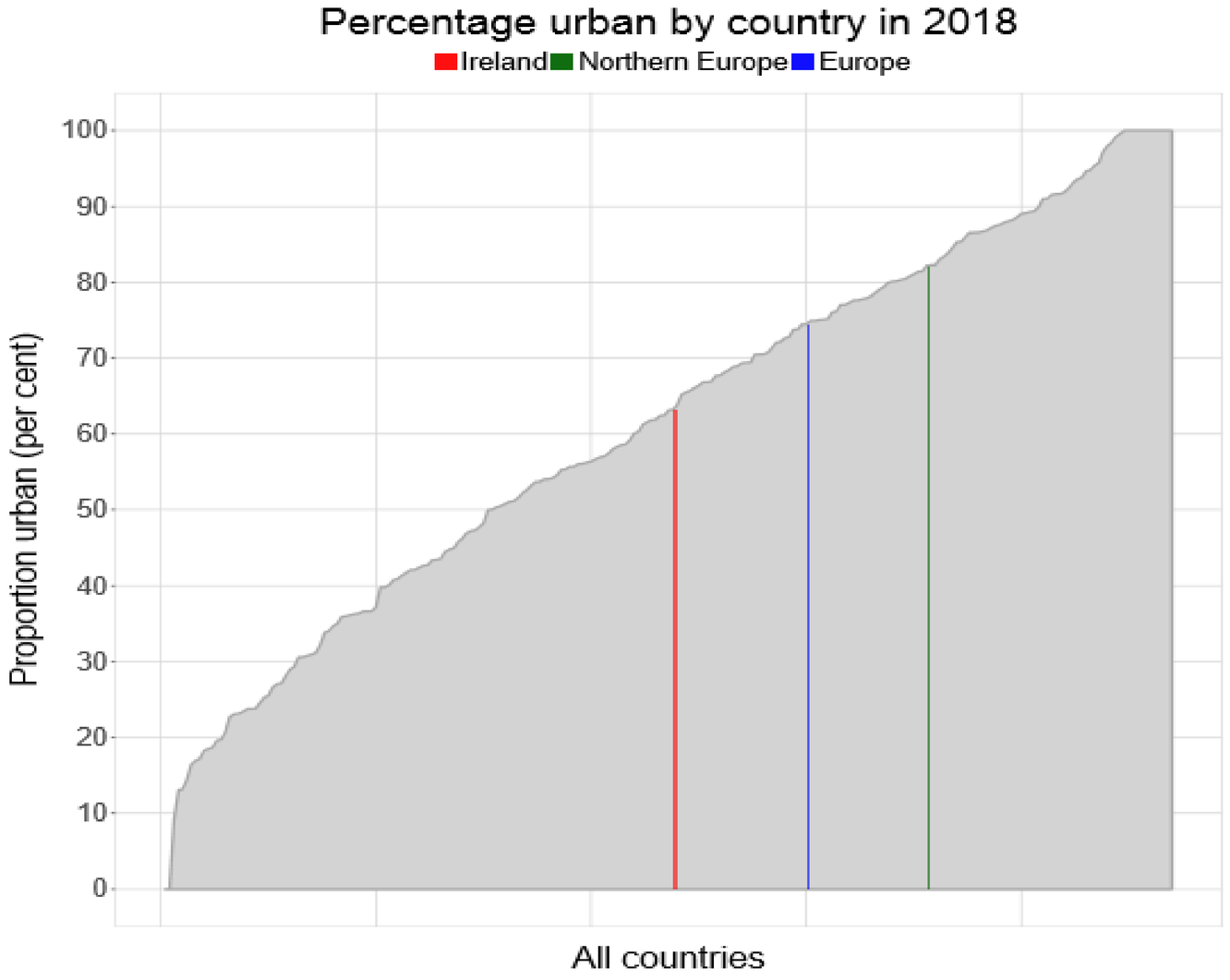


Avoid-Shift-Improve Framework



How and where people travel in Ireland





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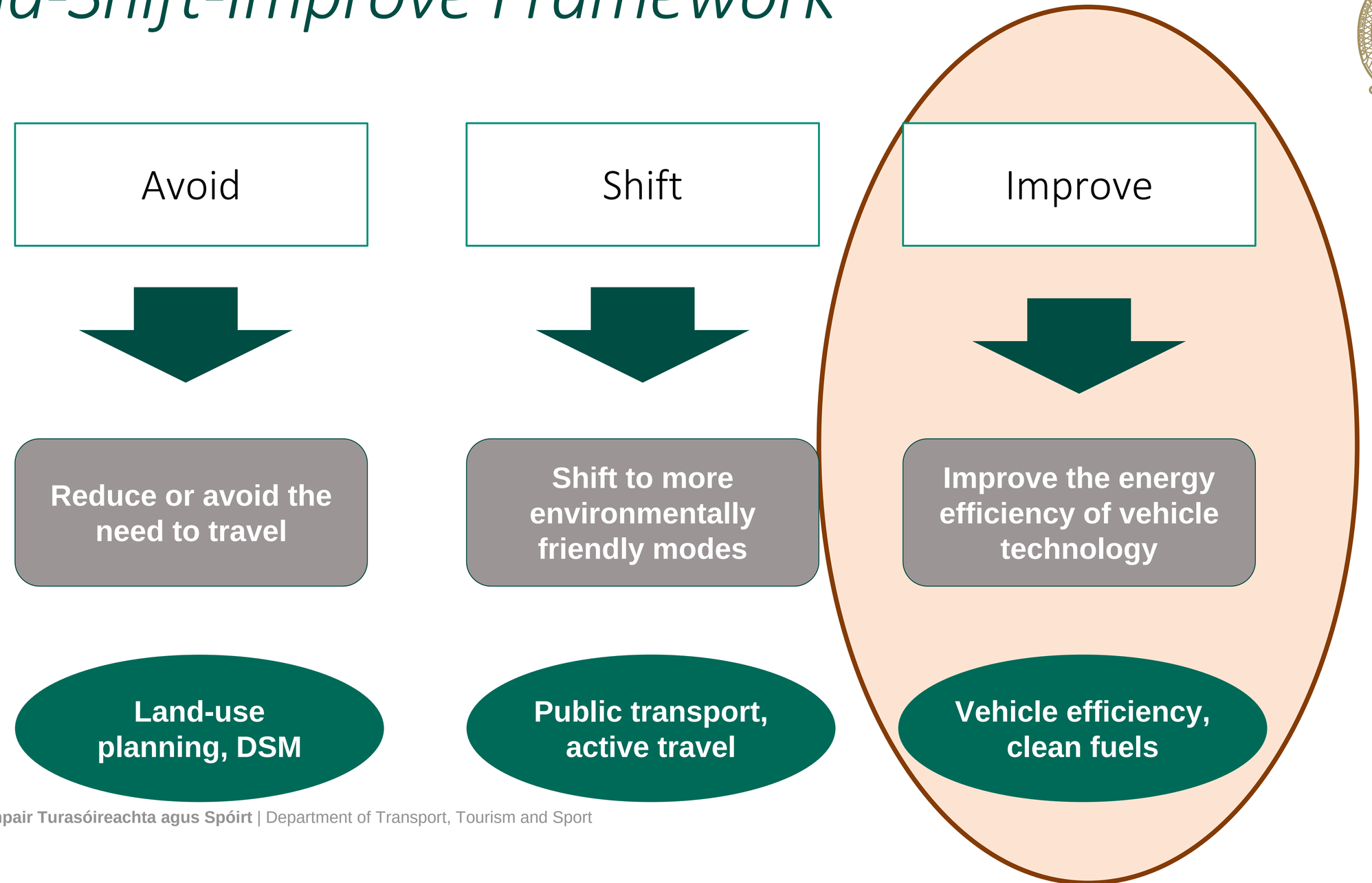
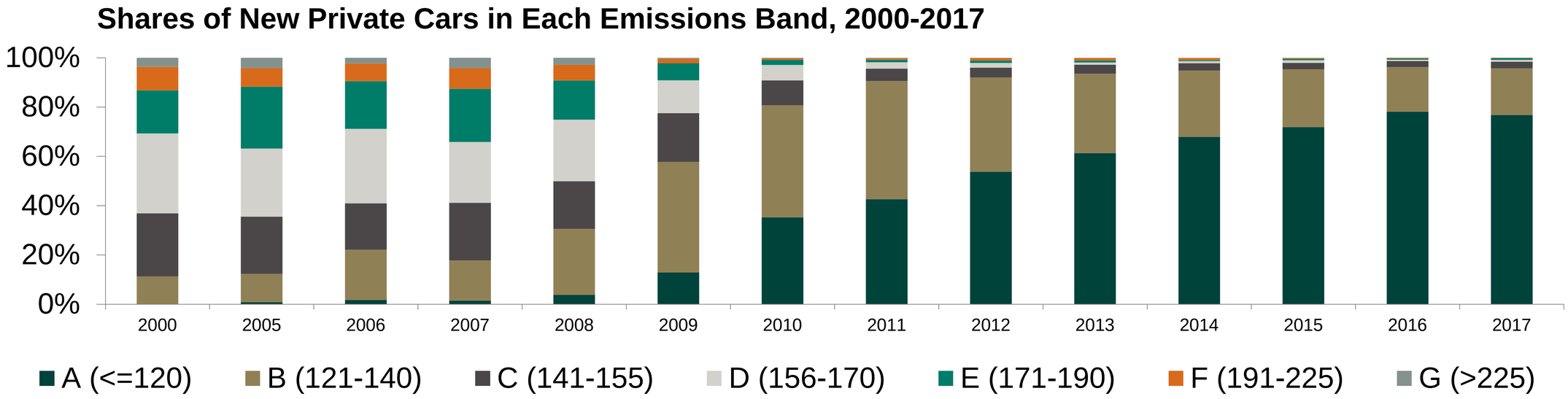


Relevant policies

- Project Ireland 2040 commits that:
  - At least 500,000 electric vehicles on the road by 2030
  - No new non-zero emissions vehicles to be sold in Ireland post 2030
- We need to understand all possible implications for large-scale shift to Evs, in terms of:
  - Emissions
  - Impacts on consumers
  - Wider transport objectives
  - Exchequer implications

Illustrative example of policy impact

- 2008 VRT / Motor Tax Change
  - Irish vehicles registration and motor taxation systems were changed in July 2008 to be based on CO_2 emissions rather than engine size



The Car Stock Model

- Developed by UCC's Centre for the Marine and Renewable Energy and **based on 2015 CSO data** for the national car fleet.

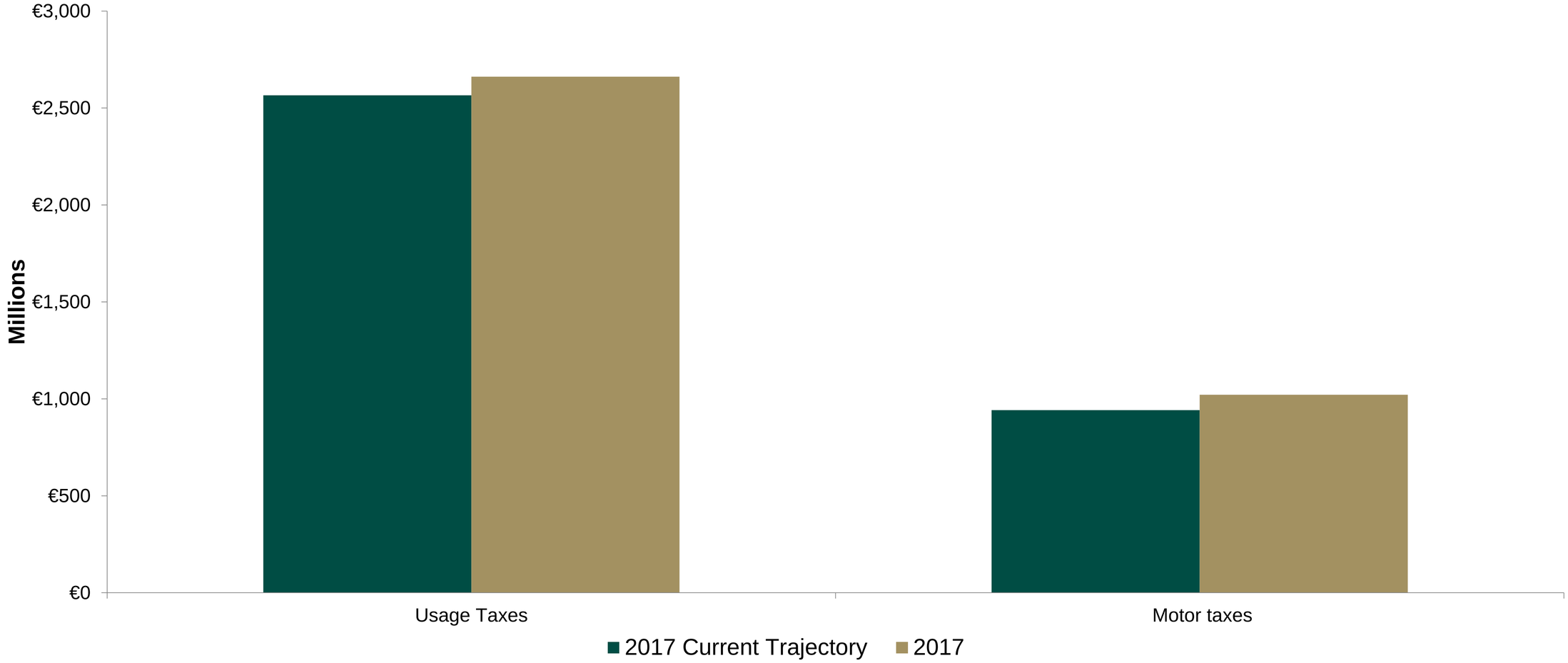
- Provides projections between 2016 and 2050 for:
  - total **size of car fleet**,
  - the fleet's **composition by fuel-type**, and
  - the fleet's **CO_2 emission profile**.

- Fleet size based on assumed level of **New Car Sales** and "**Survival Profiles**" of existing fleet

- Analysis retains UCC's fleet size assumptions and focuses on **alternative fleet compositions**.

Comparison with Actual Revenue Figures

- **Difference of c.€176 million** as model's fleet size projections don't fully account for significant increase in new car sales in 2016.



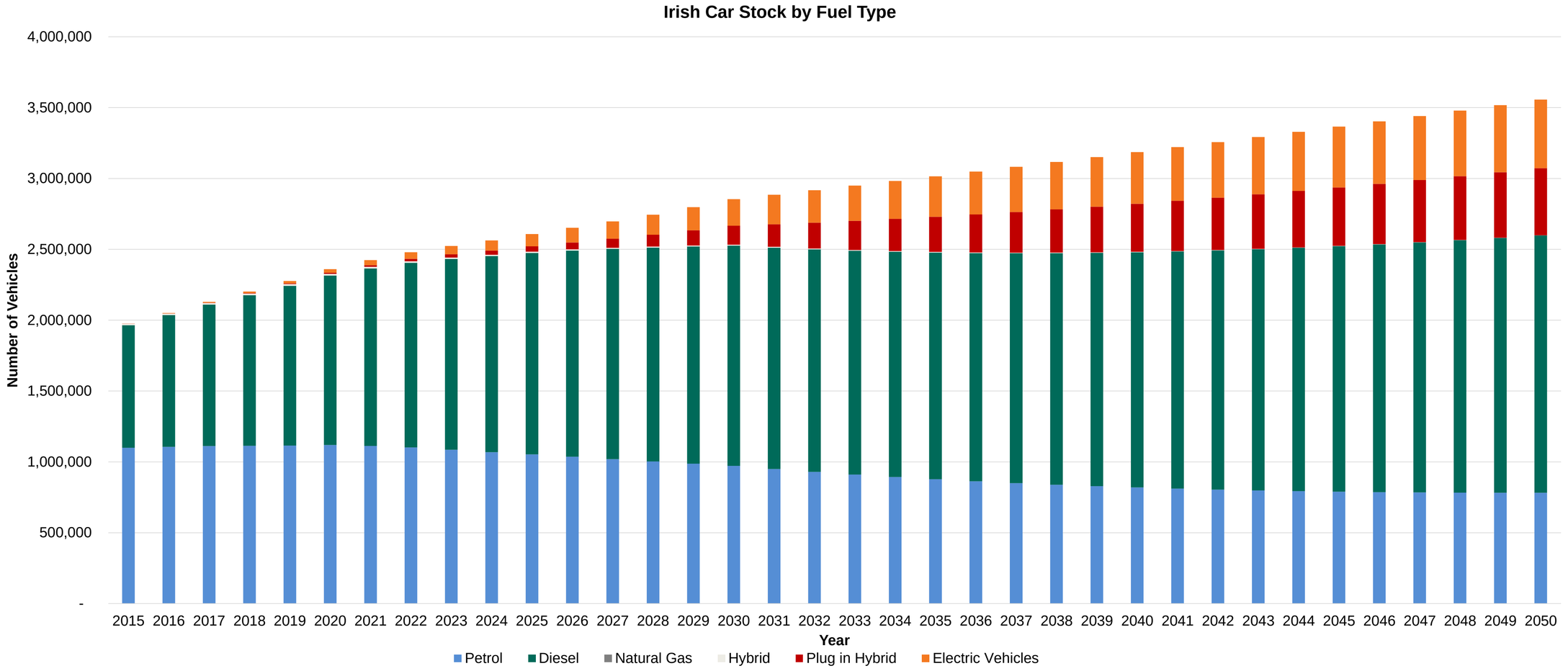
Scenarios

- All four scenarios have same fleet size projections but different assumptions regarding the make-up of New Car Sales.

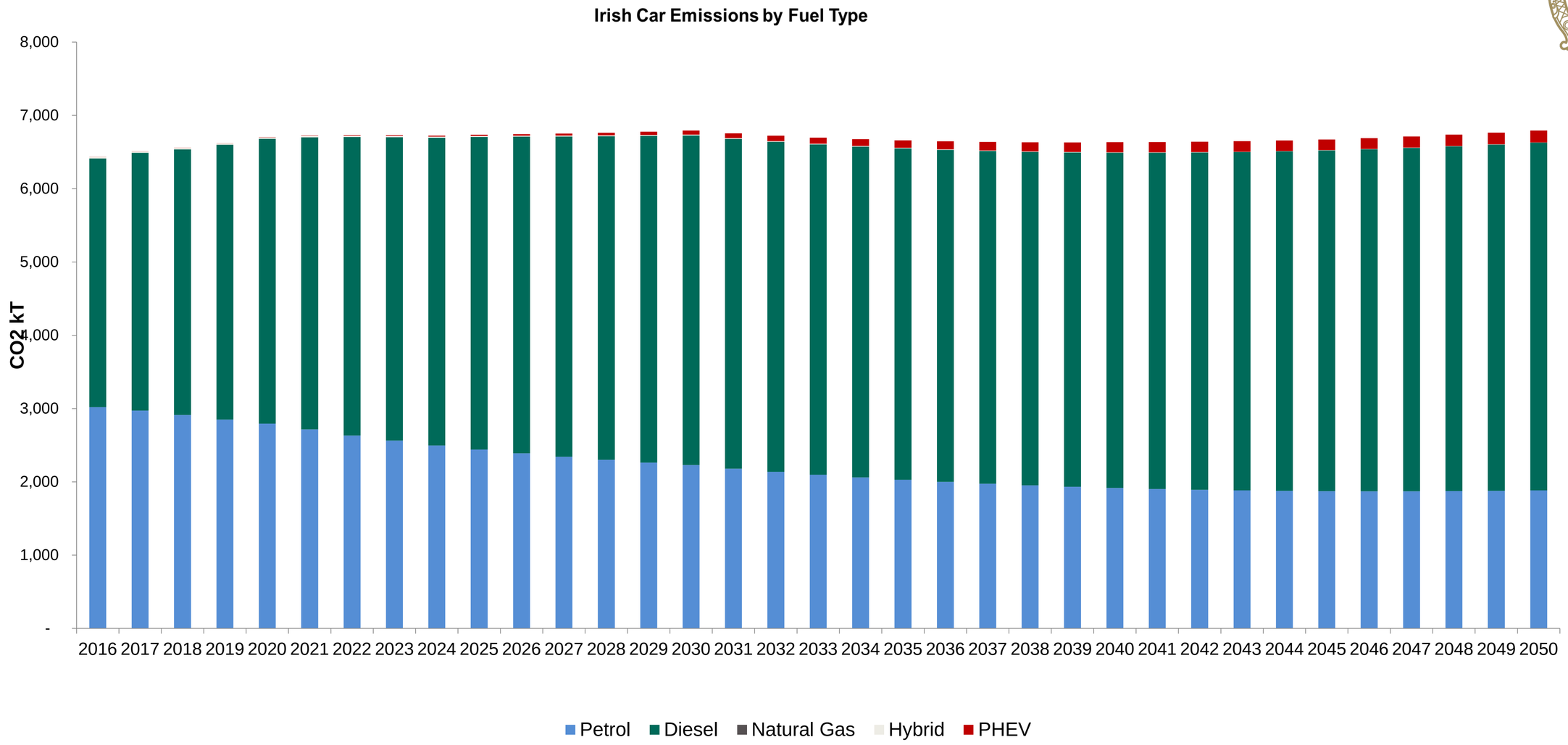
- **Scenario 1:** "*Current Trajectory*" (baseline)

  - LEVs to account for 30% of New Car Sales by 2030
  - New Car Sales trajectory =7.5% LEVs in 2020, 15% in 2025
  - Follows EU Commission targets for 2025 and 2030
  - New PHEV:BEV sales to move from 1:3 in 2020 to 1:1 by 2030

Current Trajectory – Total Stock



Current Trajectory – CO2 Emissions (non-ETS only)

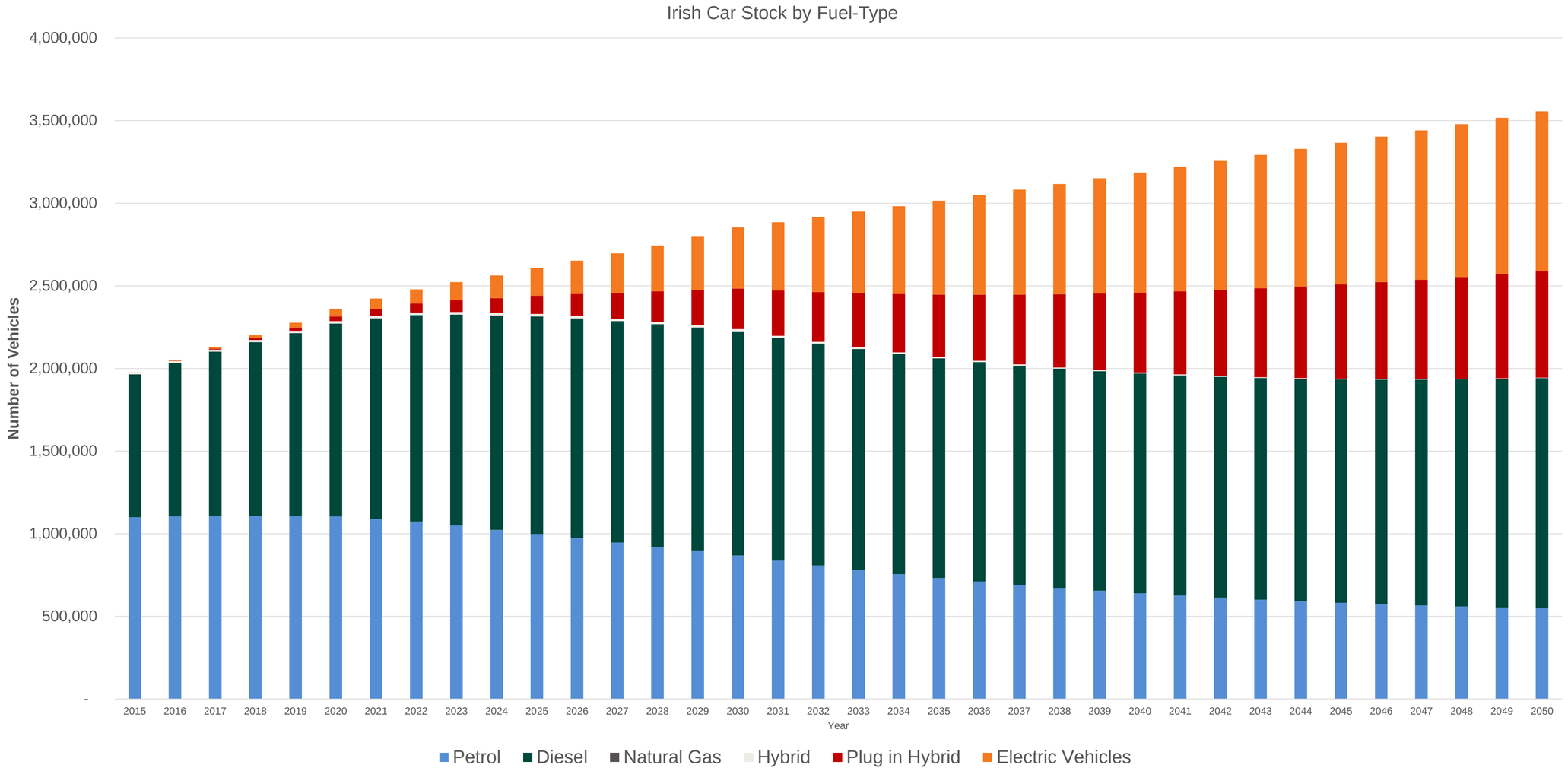


Scenarios

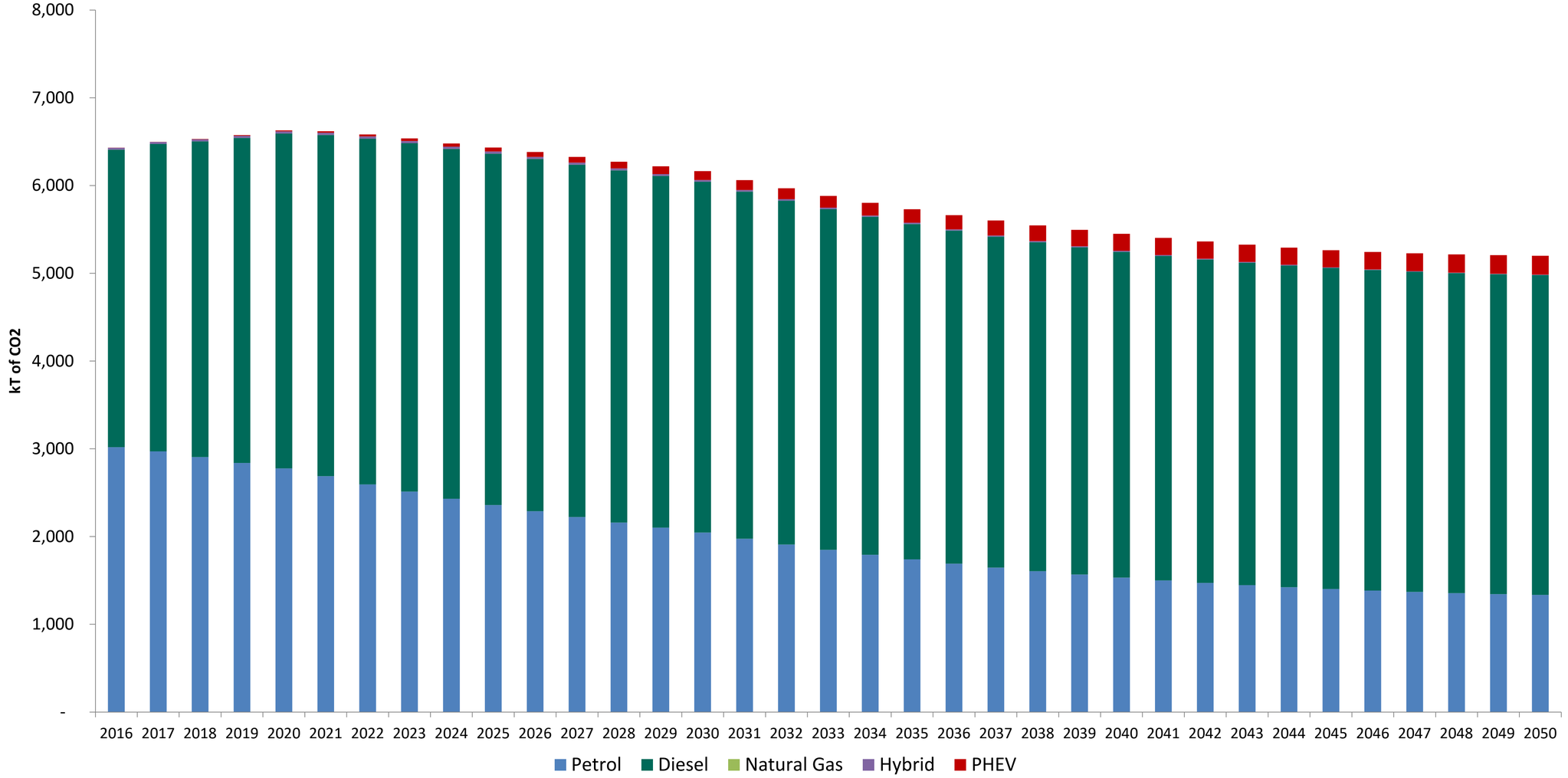
- **Scenario 2:** *"In Between"*

  - LEVs to account for 50% of New Car Sales by 2030
  - Diesel and Petrol to account for other 50%
  - New PHEV:BEV sales to move towards 2:3 by 2030

In Between – Total Stock



“In Between” – CO2 Emissions (non-ETS only)

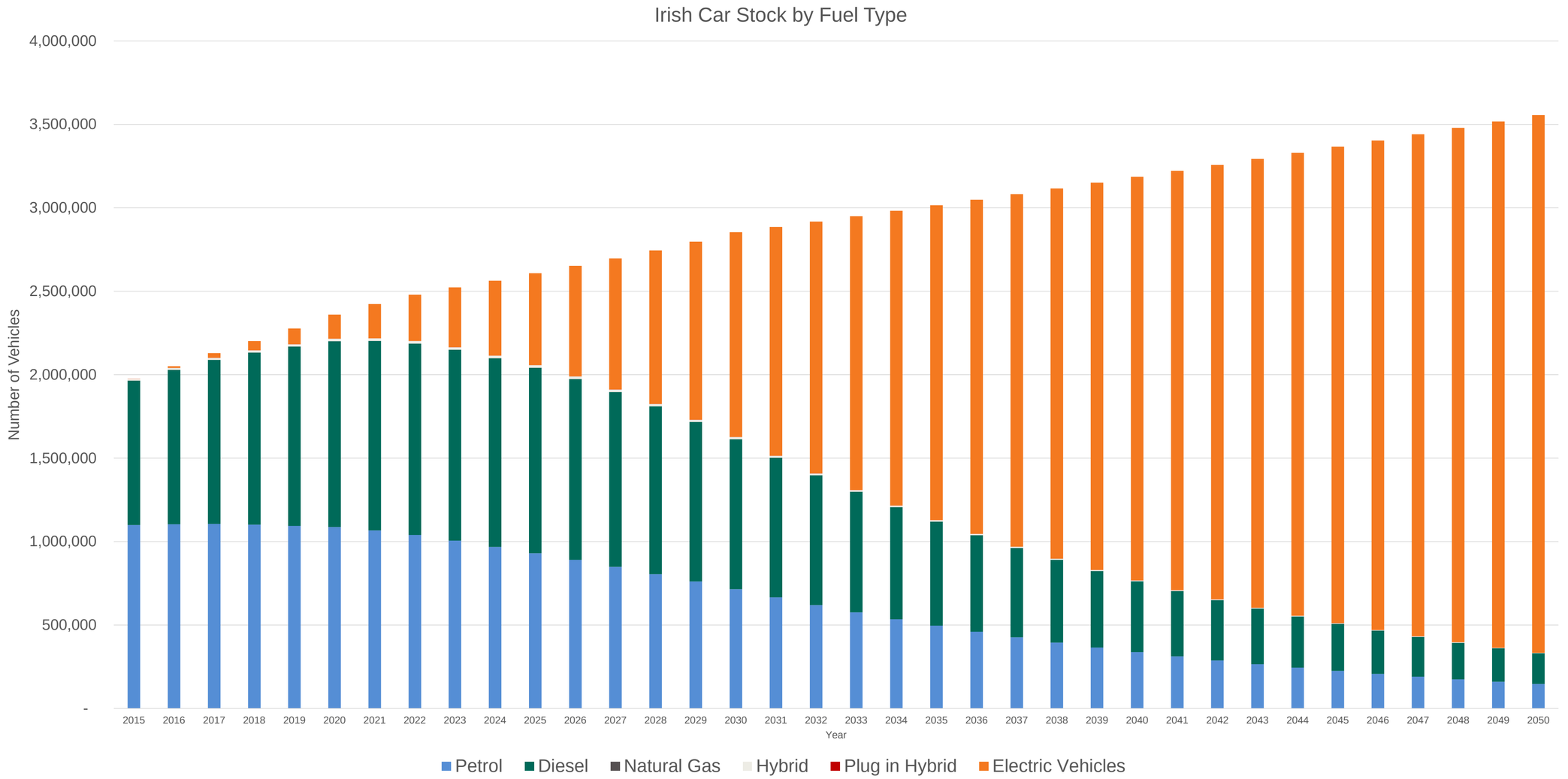


Scenarios

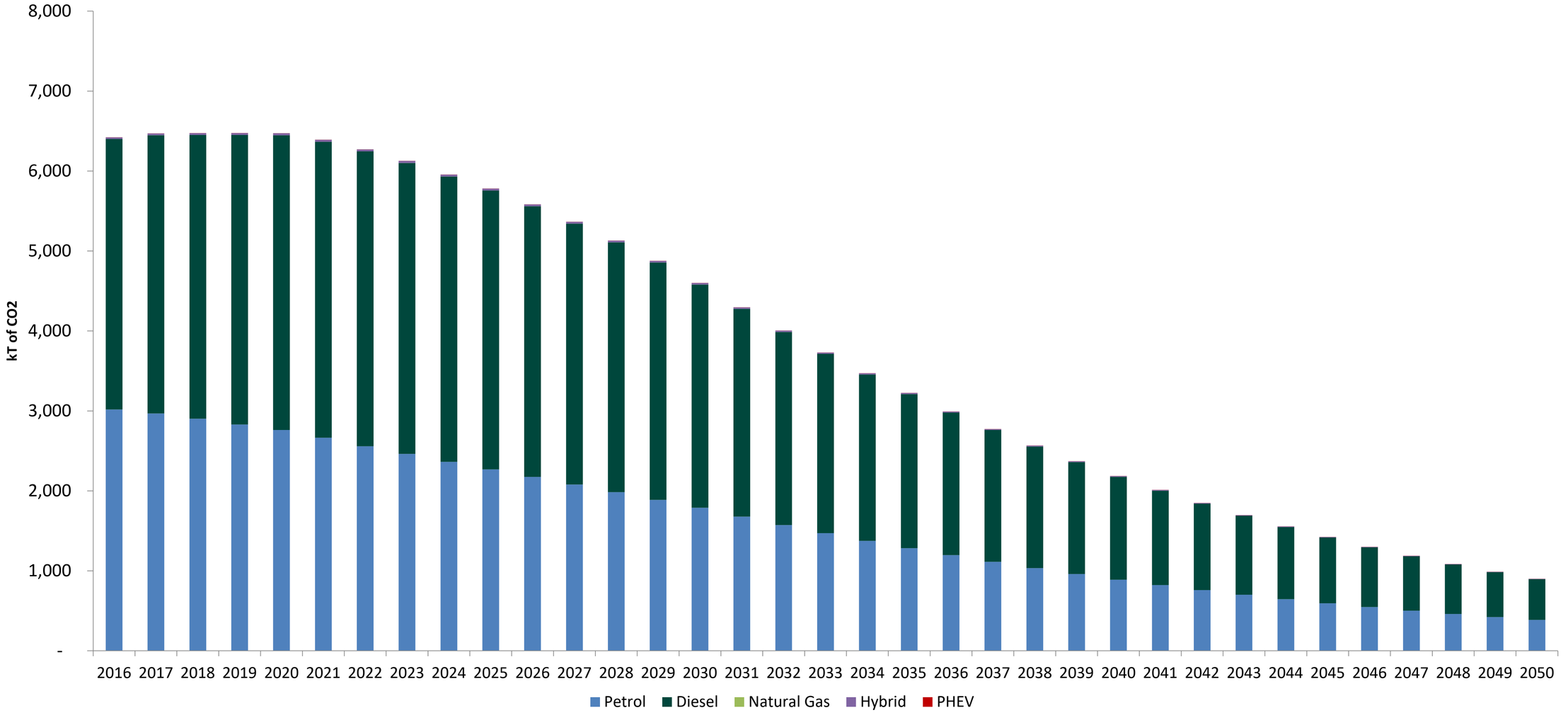
- **Scenario 4:** *"100% BEV"*

  - BEVs to account for 100% of New Car Sales by 2030
  - New PHEV:BEV sales to move towards 2:3 by 2030
  - New Diesel, Petrol & PHEV sales to reduce to zero by 2030
  - Project Ireland 2040 target – "no new non-zero emission vehicles to be sold in Ireland post 2030".

100% BEV – Total Stock

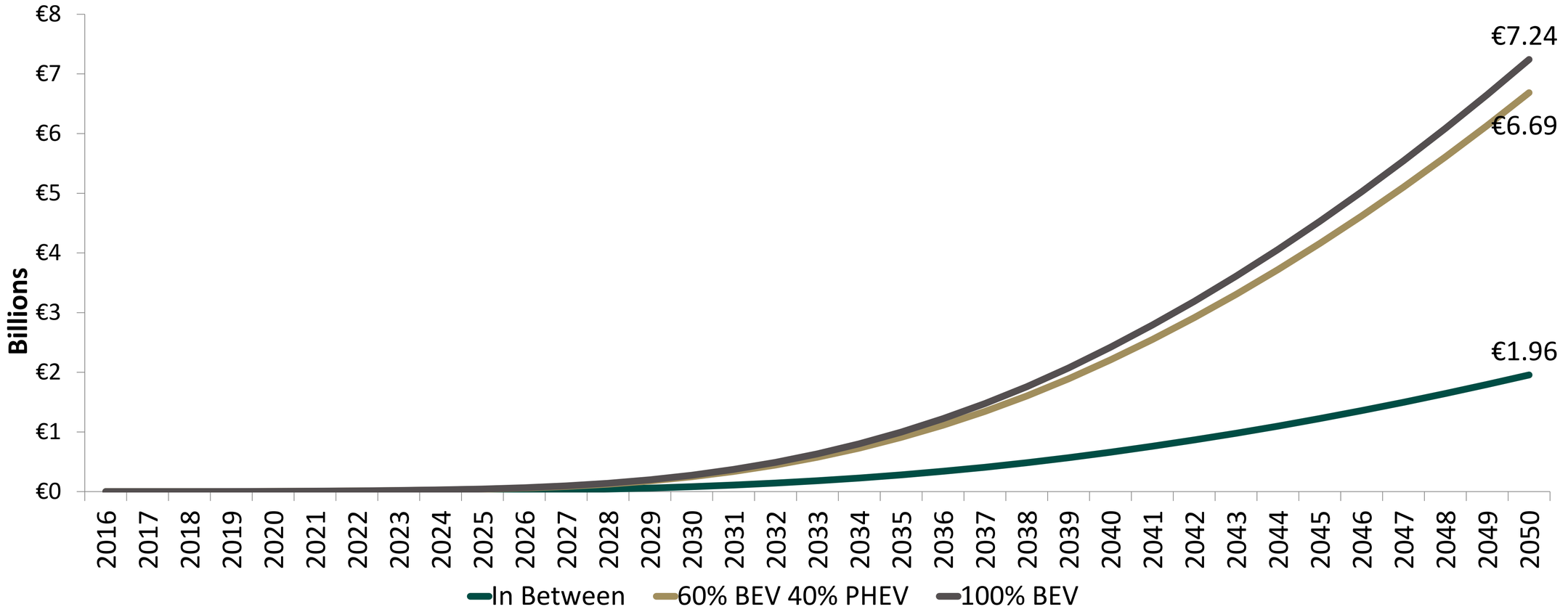


100% BEV – Emissions (non-ETS only)



Cumulative Savings from CO_2 Emission Reductions

- Applying a 'social cost of carbon', savings relative to the baseline for CO_2 emissions can range between **€1.96 billion** and **€7.24 billion**.

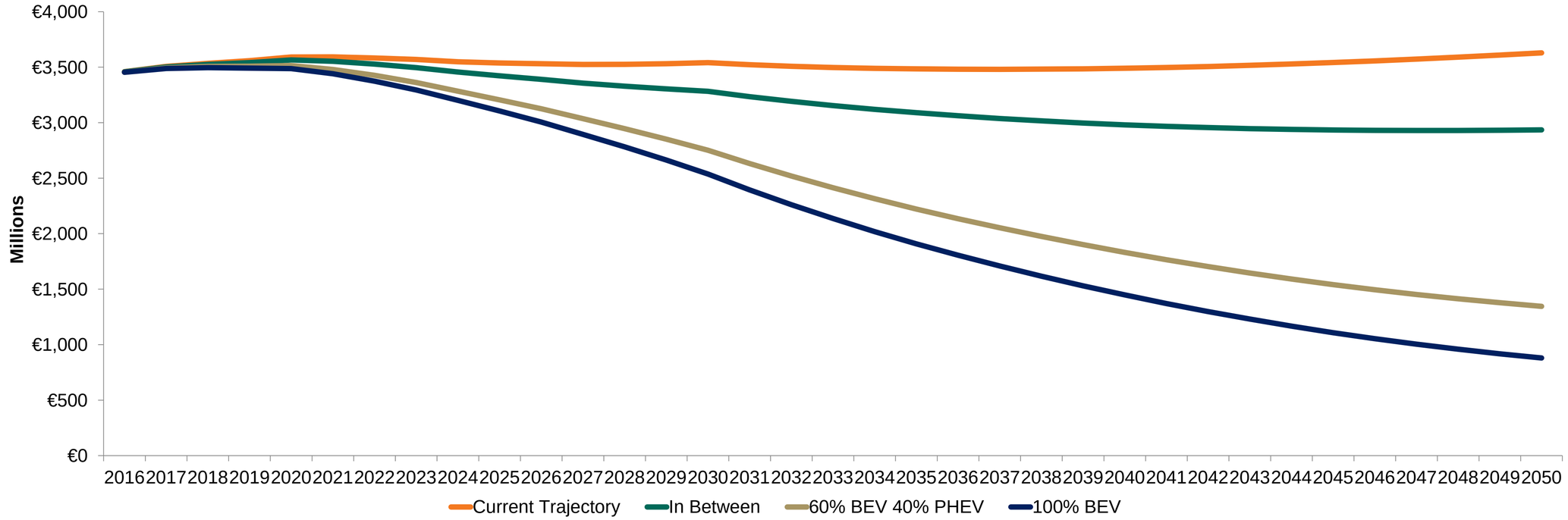


Fiscal Impacts

- Significant divergence from Current Trajectory scenario by 2020!

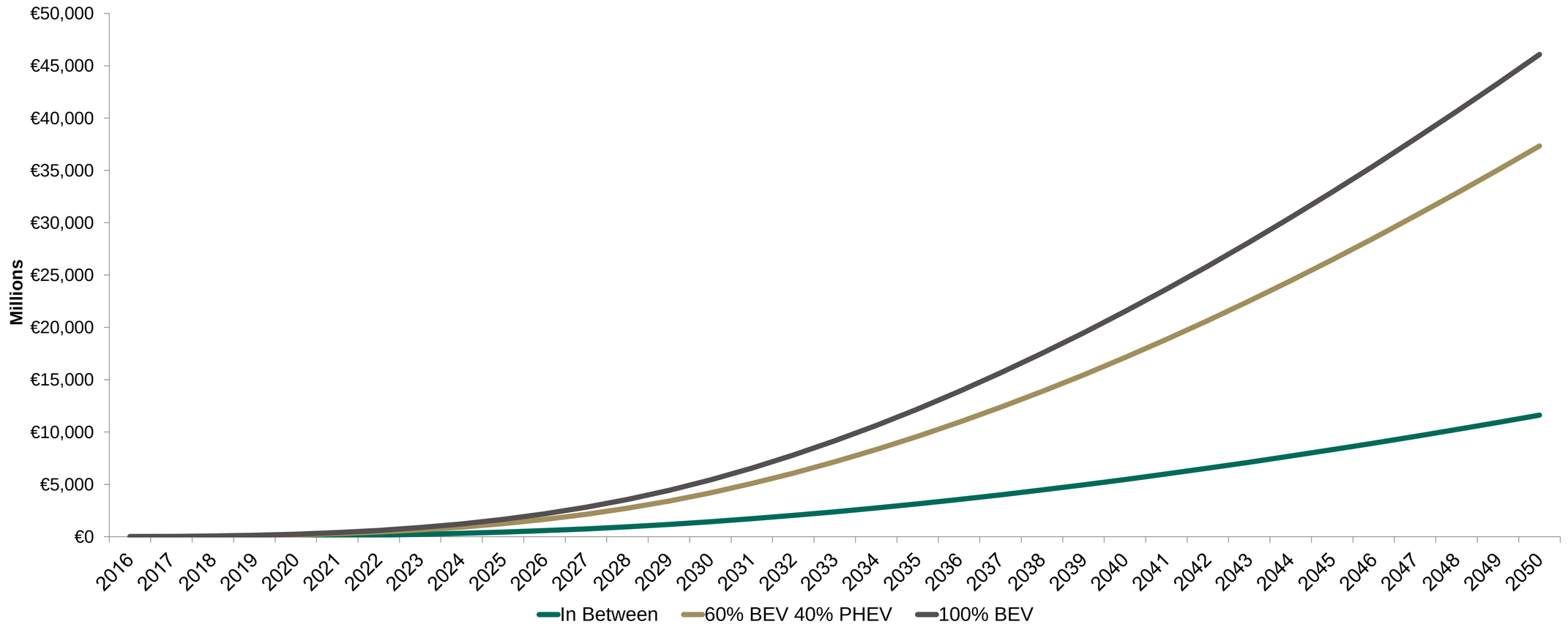
- Average difference per annum **for 2021 – 2025 ranges from €75million to €283million**. For **2026 – 2030 the ranges is from €198million to €754million.**

- **Divergence in Annual Exchequer Revenue**



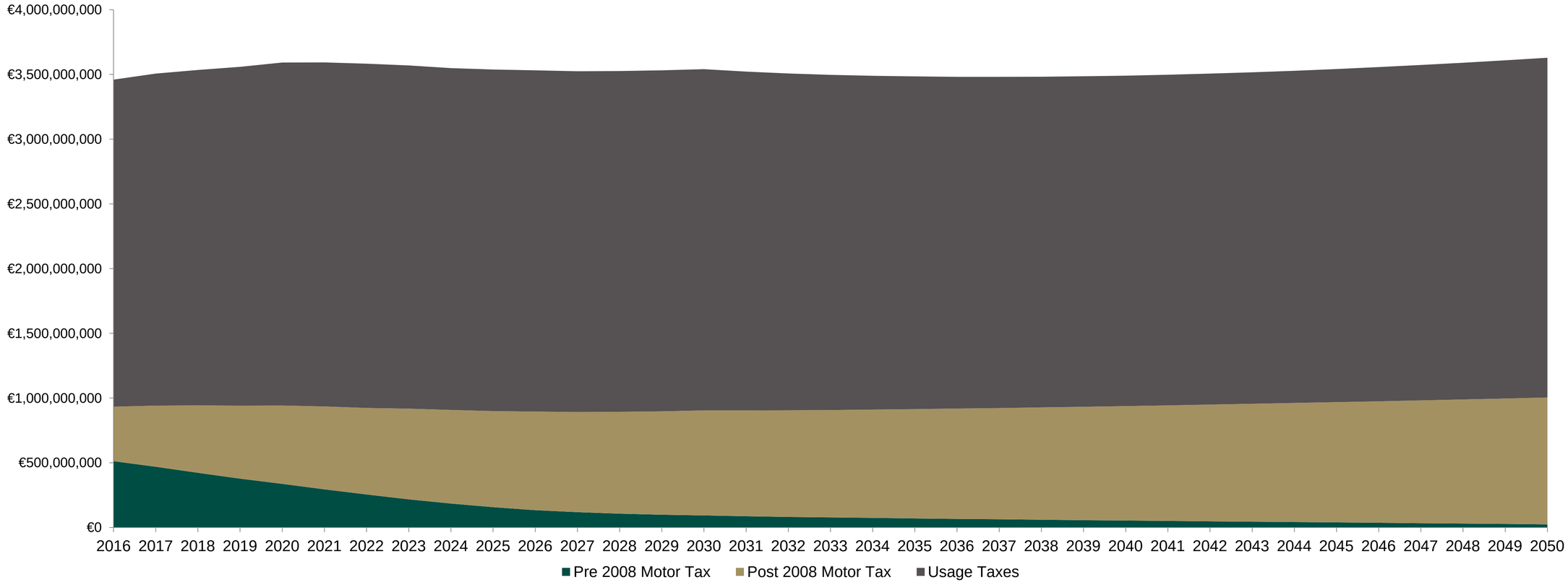
Cumulative Exchequer Loss

- Applying Usage Taxes and Motor Taxes (but not VRT) to the Car Stock Model, the cumulative loss to the Exchequer, relative to the baseline, ranges between **€11 billion** and **€47 billion.**



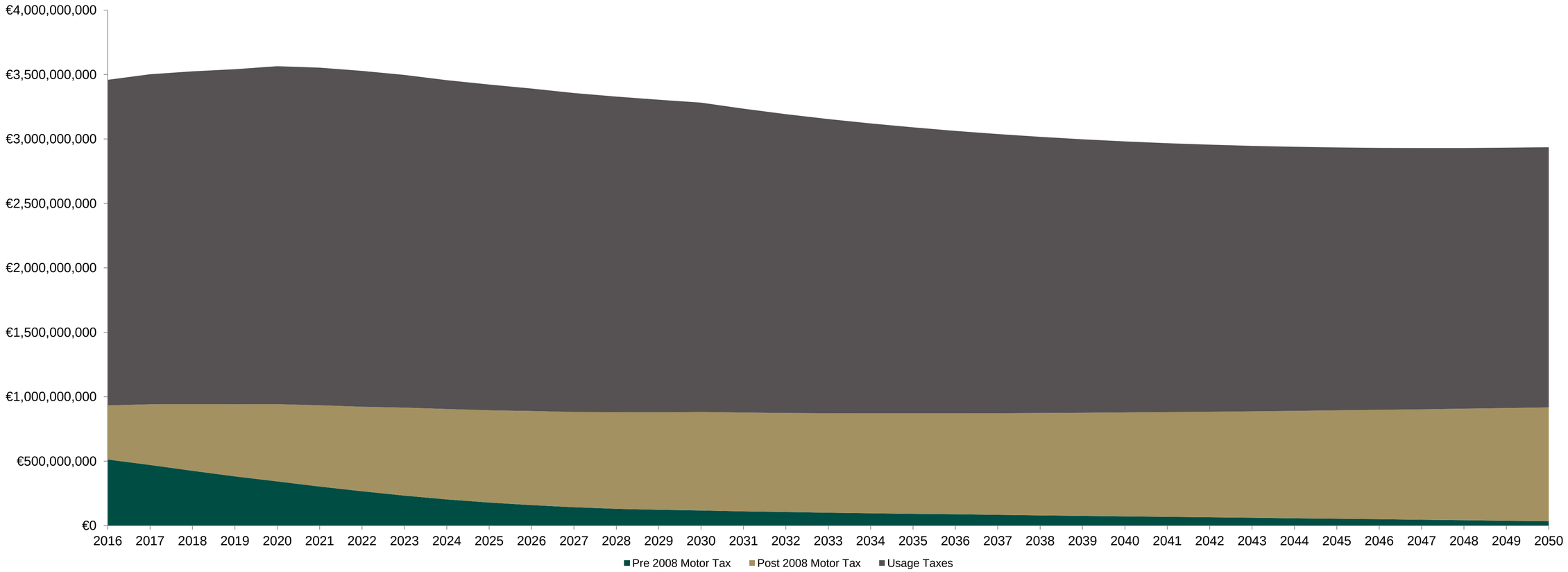
Fiscal Impacts - Scenarios

- **Current Trajectory Annual Exchequer Revenue**
- Total Tax Take remains relatively stable throughout
- Usage Taxes comprises c. 75% of observed Exchequer Revenue



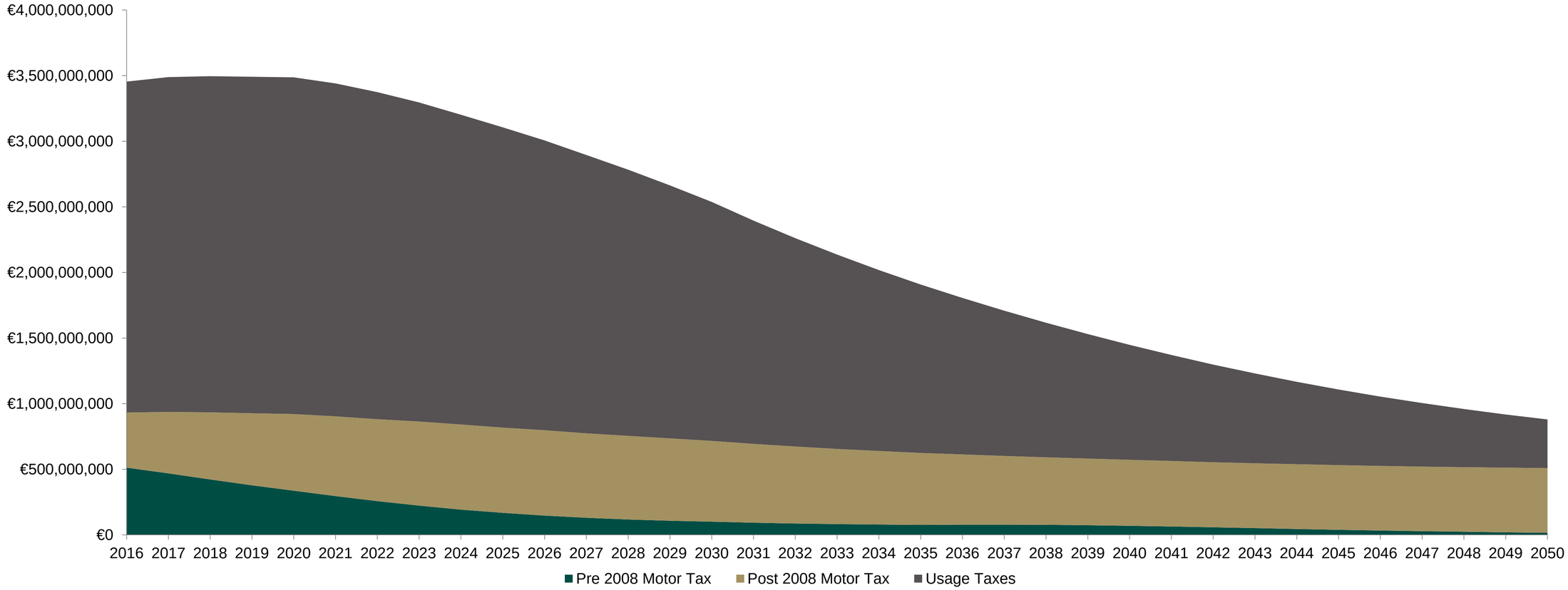
Fiscal Impacts - Scenarios

- **‘In Between’ Annual Exchequer Revenue**
- Drop in annual Exchequer Revenue between 2016 and 2050 is c.€0.52 billion
- Usage Taxes account for 97% (c.€0.51 billion) of that drop



Fiscal Impacts

- **<u>100% BEV Annual Exchequer Revenue</u>**
- Drop in annual Exchequer Revenue between 2016 and 2050 is c.€2.6 billion
- Usage Taxes account for 85% (c.€2.2 billion) of that drop



Summary of Results – CO2 Emissions

- The overall reduction in non-traded CO_2 emissions from increased LEV-uptake could range between **27,332 kT of CO_2** and **99,948 kT of CO_2** for the period 2016 – 2050.

- The **overall cumulative savings** can be quantified as being between **€0.20 billion** and **€0.73 billion**.

- Non-ETS **CO_2 emissions for the Transport Sector in 2016** were **12,213 kT (**EPA, 2018).

- The **average reduction per annum** from increased LEV uptake is between **833.8 kT** (6.7% of 2018's total) and **2,939.6 kT** (24.1% of 2018's total).

- However, average is skewed - a substantial amount of emissions savings not realised until after 2025!

Summary of Results – Fiscal Impacts

- The **cumulative loss to the Exchequer** (excl. VRT) is assumed to be between **€11 billion** and **€47 billion.**

- The fall in Usage Taxes accounts for between 85% - 92% of the overall loss.

- The State is facing potential overall **reductions in Exchequer Revenue** of c. **€0.33 billion p.a.** and **€1.32 billion p.a**.

- Over the shorter term - the **average annual loss in Exchequer Revenue between 2020 and 2025** will range between **€0.07 billion p.a**. and **€0.28 billion p.a.**

- Between **2026 and 2030** that range will be **€0.19 billion p.a.** to **€0.75 billion p.a**.

Next Steps

- Consideration of policy measures in light of uptake of EVs
  - For example, shifting taxes to road usage should be considered.

- As a first step, an analysis of potential measures and mixes of measures under relevant criteria (see next slide).

- Given the wide implications of EVs ranging beyond transport sector, a cross-Departmental approach would be appropriate.

Next Steps

Category	Transport and Environmental			Social	Fiscal	Implementation			
Objective	Enabling efficient movement of people and goods	Ensuring effective demand management		Ensuring a fair and affordable transport system for all	Revenue Raising	Minimising the administrative and financial burden			Predictability
Indicators	Congestion reductions and journey time improvements	Emissions reductions	Maintenance and operating costs	Transport costs as % of income	Exchequer Revenue sufficient to fund Government Expenditure	Administrative Costs	Technological Barriers	Investment Costs	Certainty of tax payments and receipts

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Thank You!