



# CLIMATE ACTION PLAN

2023 ▶ 2030





# We have come so far, but the journey to net zero continues

Rail is the only mode of motorised transport in Ireland to have almost continuously reduced its CO<sub>2</sub> emissions since 1990, at the same time as increasing transport volumes. Iarnród Éireann surpassed the EU 2020 target of 20% efficiency improvement and the National Public Sector target for 2020 of 33%.

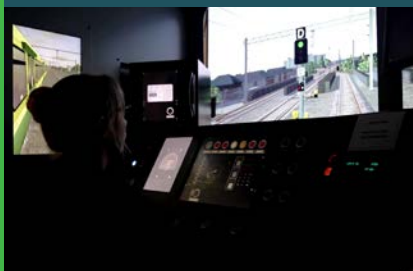
## Key areas that delivered emissions reduction to 2020:



**Improved infrastructure, timetable improvements and reduced speed restrictions**



**Improved operational systems and practices**



**A move from loco hauled to Intercity railcar operations**



Iarnród Éireann's Climate Action Plan builds on these previous successes by outlining a pathway to achieve decarbonisation targets of 51% Scope 1 and Scope 2 emissions by 2030 and net zero carbon by 2050.

### Our Climate Action Plan pathway to 51% reduction in emissions

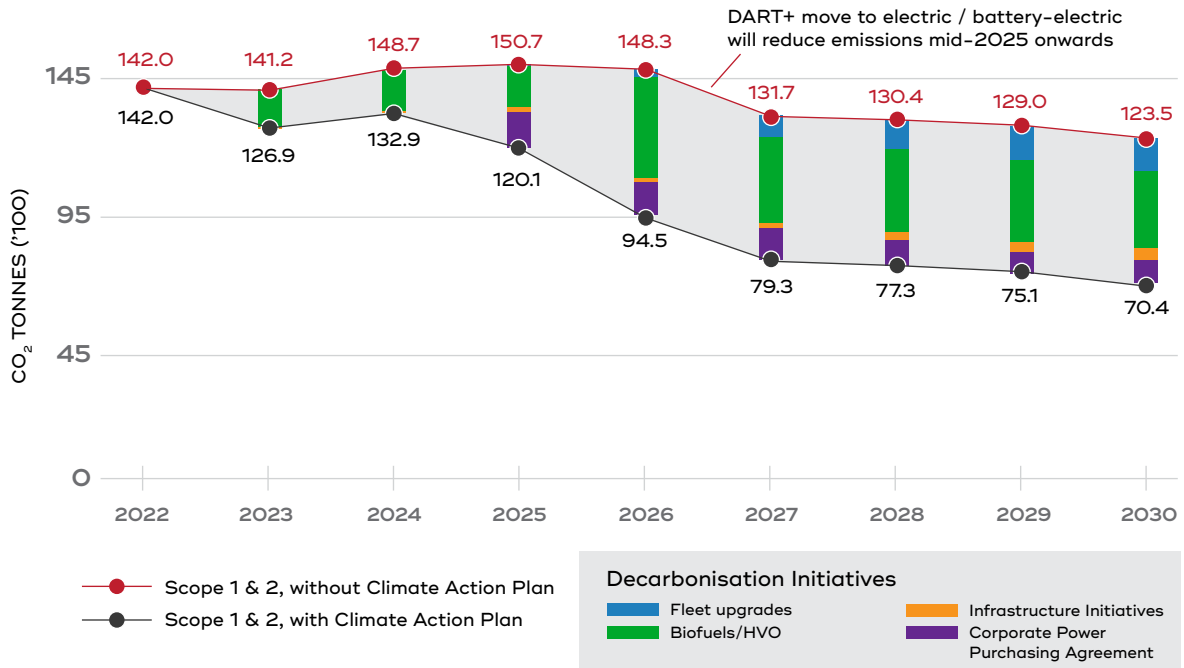


Figure 1: Decarbonisation pathway





# Where do Iarnród Éireann's emissions come from?



Iarnród Éireann's 2018 baseline combined Scope 1 and 2 greenhouse gas emissions amounted to 144.4 thousand tonnes of CO<sub>2</sub>. These emissions account for approximately 1% of the total national transport emissions (SEAI).

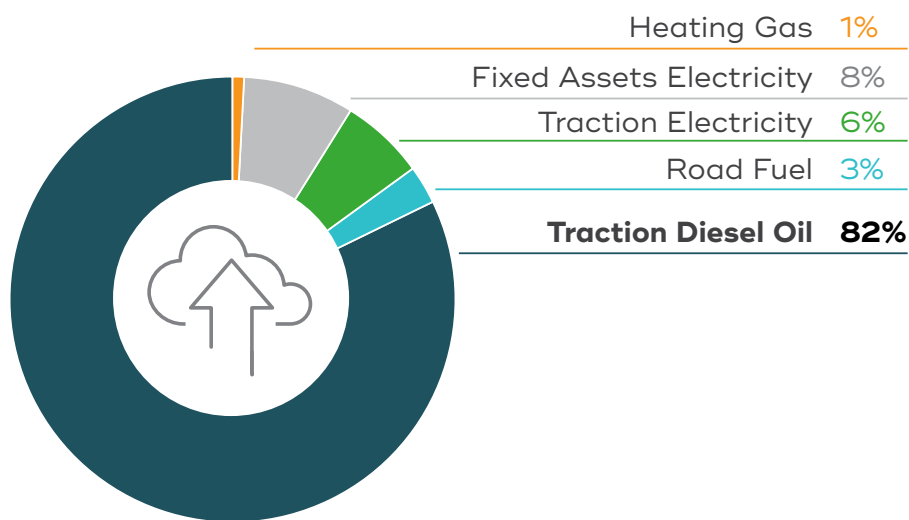


Figure 2: Source of Iarnród Éireann Scope 1 and 2 carbon emissions for 2022

In 2022, diesel fuel consumed through rail and road operations accounted for 85% of our overall emissions. Reducing our reliance on diesel fuel is critical to our decarbonisation pathway.

The total diesel traction fuel consumption amounted to 43.8 million litres in 2022 with the ICR fleet which is mainly used on Intercity routes accounting for over 23 million litres (53%) of this. The next major contributors, each accounting for circa 20%, are the 201 locomotives which operate on the Dublin to Cork and Belfast lines primarily, and the 29000 commuter fleet, mainly operating commuter services on the Maynooth and Dundalk lines.

### 2022 Emissions by Rail Fleet

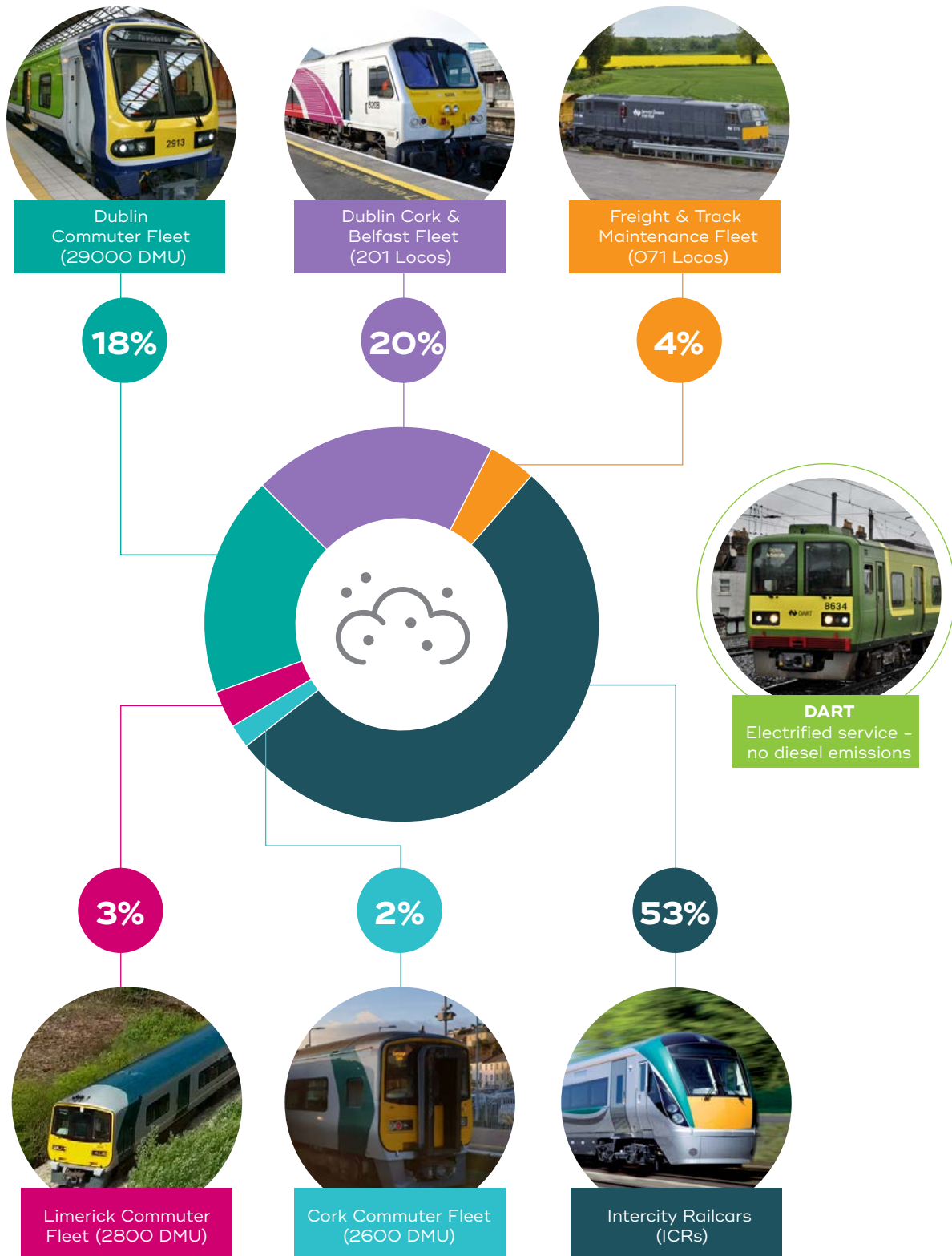


Figure 3: Diesel fuel consumption by fleet type, 2022.





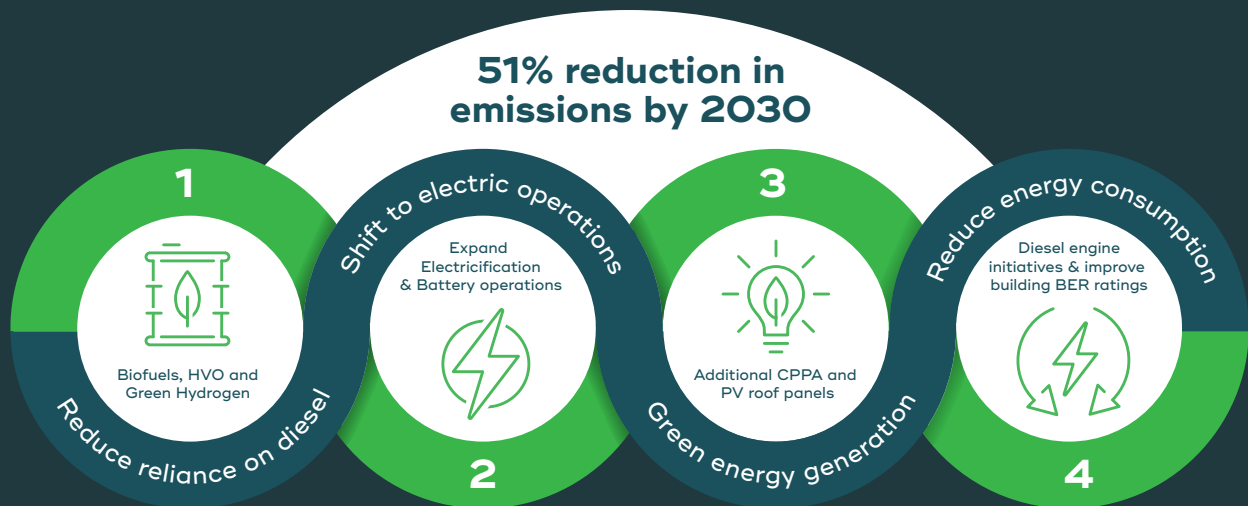
# The pathway to 51% reduction in emissions

To meet our public sector target of 51% reduction in emissions by 2030, Iarnród Éireann must reduce its combined annual Scope 1 and 2 emissions to circa 70,800 tonnes, relative to 2018 while growing the passenger and rail freight businesses at the same time. This in turn supporting the overall national reduction in transport emissions.

## Targets to 2030



## 2030 Decarbonisation Pathway



### 1. Reducing our fleet reliance on diesel

- All diesel fleets will operate with at least a 35% biofuel/Hydotreated Vegetable Oil (HVO) blend.
- Increase in rail freight operations – fuelled by HVO and/or green hydrogen.
- Fuel all track maintenance vehicles with HVO.
- Moving all road fleet to electric or HVO fuel by 2030.

### 2. Transitioning to electric-powered fleet

- Electric and battery-electric trains, and associated infrastructure will operate for the DART+ network in Dublin and the Cork commuter rail network, allowing the retirement of older diesel fleets.
- A new Enterprise fleet will allow for future electric power on the Dublin Belfast route.
- Planning to be advanced for the electrification of key sections of the InterCity network to meet net zero goals for 2050.

### 3. Green energy generation

- Existing and new DART fleet will benefit from increasing renewable energy content of the national grid, doubling to 80% by 2030 compared to c.40% currently, as well as the proposed Iarnród Éireann Corporate Power Purchasing Agreements (CPPAs).
- Photovoltaic solar panels will be installed across Iarnród Éireann buildings where feasible.

### 4. Reducing our energy consumption (phased approach up to 2030)

- Intercity railcar fleet will be converted to hybrid power with on-board battery, delivering a carbon emission reduction of up to 30%.
- Upgrades to the remaining Dublin commuter rail fleet to deliver a 20% reduction in fuel consumption and emissions.
- Building upgrades will deliver improved energy efficiencies with BERs going from G to B/C whilst protecting the heritage of our buildings.
- All new buildings and major upgrades to be built to Nearly Zero Energy Building Standard.
- Reducing our electric and gas consumption by 1.5% to 2% per annum through supply side initiatives and demand side reductions.





# Assumptions

**Significant Capital Funding will be required for Iarnród Éireann to deliver the key projects that form this Decarbonisation Pathway including:**

- DART+ Infrastructure to support electric and hybrid battery operated fleet.
- Upgrade of engines on younger diesel fleets such as the ICR Intercity railcars and Dublin commuter trains to reduce emissions.
- Increased use of alternative fuels, such as biofuels, HVO and green Hydrogen across passenger and freight diesel fleets and track maintenance plant.
- Corporate Purchasing Power Agreements to target 80% renewable sources.
- The building upgrade programme which will reduce energy consumption and introduce a PV energy programme.





## Next Steps – Net Zero by 2050

After 2030, our major Scope 1 and 2 focus will be on the Intercity and freight businesses, as these will remain the main source of emissions with the Intercity railcar fleet still within its useful life.

Significant increases in passenger and freight service frequencies are anticipated during this time, with the All-Island Strategic Rail Review detailing higher frequencies and speeds on the existing network, and the most significant expansion of the rail network in over 130 years. Carbon Net Zero will necessitate the roll-out of network electrification to avail of 100% renewable energy from the national grid including:

- Completion of DART+ programme electrification.
- Electrification of the main Intercity routes: Dublin – Belfast, Cork, Limerick, Galway and Waterford.
- Renewable energy for all other routes depends on distance, technology developments and availability. Sources include electric battery and alternative fuels including green hydrogen and HVO.
- Freight operations will be a combination of electric traction and alternative fuels including green hydrogen and HVO.
- Increased focus on reducing/eliminating Scope 3 emissions throughout our company's value chain.



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