



**Córas Iompair Éireann**



# **CIÉ Group Sustainability Strategy 2020**

**June 2020**

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## 1 OVERVIEW OF GROUP SUSTAINABILITY VISION AND PURPOSE

The CIÉ Group is the largest public transport provider in Ireland and is in a unique position to assist in addressing national economic, social and environmental challenges. Our sustainability strategy represents a coordinated plan of action to be delivered by the CIÉ Group of Companies, including Dublin Bus, Iarnród Éireann and Bus Éireann. The plan aims to align operations with the targets outlined in the national Climate Action Plan (2019) and the U.N. Sustainable Development Goals (SDGs). The strategic objectives are in keeping with the investment priorities of the National Development Plan 2018-27, the National Planning Framework and regional development plans.

Focusing on the global challenge of tackling climate change, we aim to become a fully sustainable and circular business and are working closely with our partners, as part of a national integrated approach, to deliver low-carbon public transport services and promote sustainable mobility. We have an ambitious plan to achieve our public sector climate targets for carbon reduction and energy efficiency across rail and bus services. Working with the National Transport Authority (NTA) and the Department of Transport, Tourism and Sport (DTTAS), we are actively exploring low carbon technologies in order to adopt a mix of low emissions technologies across our infrastructure.

Ensuring our network is climate resilient is a critical focus for the CIÉ Group, particularly for the rail network along vulnerable coastline. We are working with partners and the DTTAS to monitor and evaluate risk and to reinforce the network to withstand extreme weather conditions. We also aim to continuously improve our environmental protection programme, while actively contributing to enhanced biodiversity in the environment surrounding our services.

We are committed to using CIÉ Group land and property to enhance transport-oriented development and aid in achieving the objectives of the National Development Plan for compact growth and planned spatial planning. This includes, where possible, integrating active travel infrastructure and micro mobility innovation into our properties and network.

Driving performance on responsible consumption and production is a priority for our sustainability strategy. We have partnered with the Environmental Protection Agency to build centres of excellence and enhanced performance for improved circularity across our operations and services.

We value our people and our customers and, in line with the SDGs, we will continue to take action to ensure safety of customers and employees; to provide opportunity and support for an inclusive and diverse workforce; and to build relations with local communities.

With the outbreak of the COVID-19 pandemic in early 2020, public transport has played a critical role in the safe transport of employees of essential services. The CIÉ Group of companies, in co-operation with government departments, the NTA and other stakeholders provided a successful response to the public health crisis. The measures implemented as part of this response supported the national strategy to flatten the curve and have kept customers and employees safe. To ensure the safety of customers



and employees we have put in place a comprehensive set of measures for sanitisation, hygiene and protection across services.

Our sustainability strategy was devised to reflect the necessary actions to meet our climate targets and direct our social and environmental performance. The pandemic should not change the long-term plans to increase active travel and public transport usage. Climate Change challenges remain. CIÉ's Sustainability Strategy is a dynamic one and will evolve to ensure both short term and long-term challenges are adequately addressed. In the context of the pandemic, actions requiring significant capital expenditure will now be subject to further review, given the uncertain economic outlook.

The CIÉ Group sustainability strategy (2020) constitutes the plan for the next phase in the historic and progressive role of the Group in Irish society and aims to underpin economic, social and environmental progress across Ireland, whilst delivering on sustainable goals.

A handwritten signature in black ink, appearing to read 'L. O'Connell', is positioned above a horizontal line.

Group CEO

# 1 SUSTAINABILITY HIGHLIGHTS

## Iarnród Éireann

Hybrid Power Pack Programme received €15 million Climate Action Fund investment in 2019.



Aim to plant 4.5 hectares of native woodland by 2021.



54 tonnes of material reused or recycled in 2019: 100% of waste diverted from landfill.



Biodiversity / pollinator plans delivered in 10 stations in 2019-20.



Aim to increase electrified lines from 50km to 150km (300%) by 2030.



## Dublin Bus

Working to deliver the BusConnects Programme to relieve the GDA of congestion and improve accessibility.



Introduced Hybrid Double Decker Buses in 2019.



Aim to improve waste recycling rate from 75% to 85% in 2020.



Aim to deliver a bus depot rainwater harvesting trial in Summerhill garage in 2020.



Aim to double the number of female drivers by 2025.



## Bus Éireann

First 24-Hour City Service Route in Ireland launched in Cork in 2019.



Achieve 60% of fleet at Euro VI Low Emission Standard from 53% by 2020.



Aim to launch an electric Bus Pilot in Athlone and hydrogen bus trial in 2021.



Aim to deliver 'Destination 2023' strategy and capital spending programme.



Aim to achieve an energy efficiency improvement of 15% by 2020 and 50% by 2030.



## CIÉ Holding Company

TOD Masterplans to be launched at 3 sites in 2020, subject to market conditions.



Will deliver an employee education programme on the circular economy with the EPA in 2021.



Aim to complete Heuston archive scoping project in 2021.



Aim to deliver 5 local biodiversity initiatives with local community groups annually.



Aim to obtain the ISO 50001 energy management standards certification by 2030.



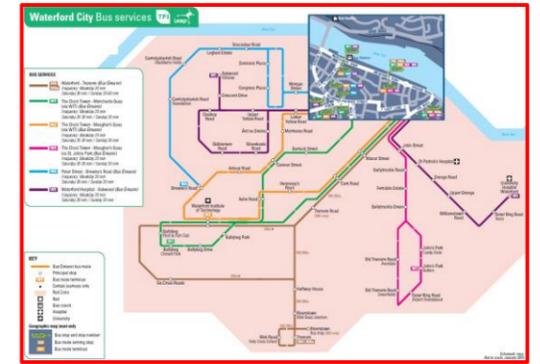
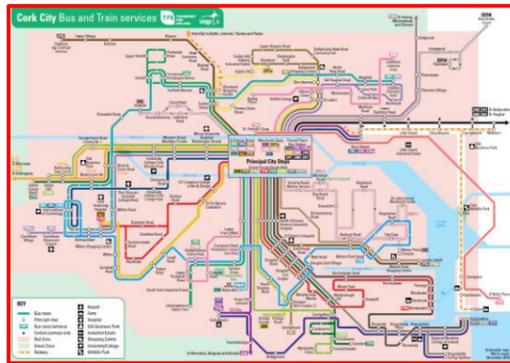
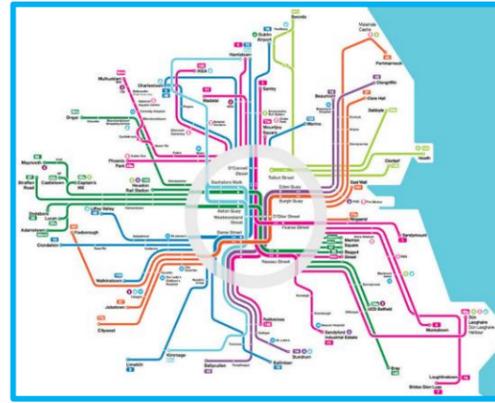
# 281 MILLION PASSENGERS IN 2019



**PASSENGER NUMBERS**  
89.1 MILLION

**PASSENGER NUMBERS**  
141.8 MILLION

**PASSENGER NUMBERS**  
50.1 MILLION



## 2 THE SDGs AND THREE PILLARS OF SUSTAINABILITY



The CIÉ Group aim to contribute to sustainable development by adopting a three-pillar model of sustainability and the UN Sustainable Development Goals.

The 17 Sustainable Development Goals (SDGs,) agreed by the United Nations in 2015, set out a pathway for governments, organisations and citizens, to work toward a sustainable future. The SDG's are broad-based, interdependent and encompass environmental, social and economic goals. They are intended to be a "blueprint to achieve a better and more sustainable future for all" and since ratification by the 193 Member States of the United Nations, the goals have been used as the common standard for framing the direction of organisational sustainability. The CIÉ Group has adopted the UN SDGs in support of Government policy. Our 'three pillars of sustainability' strategy is designed to integrate the SDGs into our Group purpose and maximise our contribution to their realisation by 2030.

### 2.1 THE CIÉ GROUP THREE PILLARS OF SUSTAINABILITY

#### Pillar One: Economic

**Goal:** Provide a high-quality transport service that stimulates economic activity, tackles congestion and connects communities, businesses and organisations.

#### Pillar Two: Social

**Goal:** Foster a diverse and inclusive society by ensuring access and opportunity for all.

#### Pillar 3: Environmental

**Goal:** Work with partners to lead the transition to a low emissions transport network and ensure the protection of natural capital and infrastructure at risk of climate-related disruption.

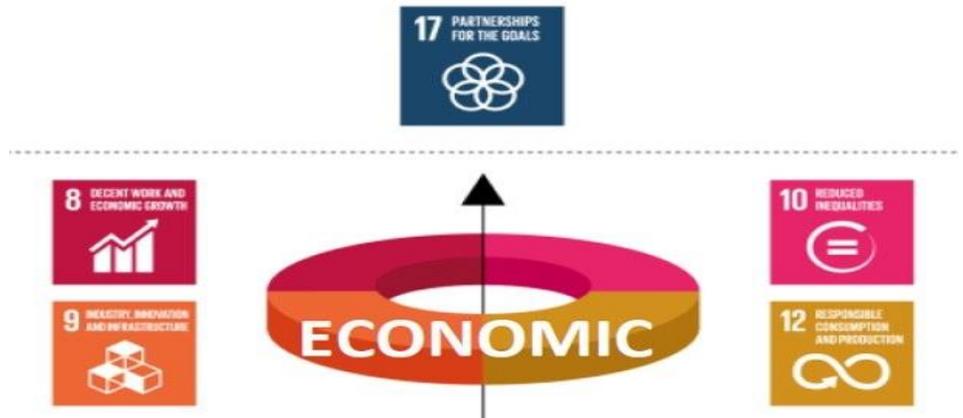


# CIÉ Group Sustainability



## 2.2 PILLAR ONE: ECONOMIC

**Goal:** Provide a high-quality transport service that stimulates economic activity, tackles congestion and connects communities, businesses and organisations.



### Supporting Economic Growth and Delivering Connectivity

The CIÉ Group delivers a public transport service that is the backbone of much of Ireland’s economic activity. The value of our network is underpinned by the connectivity of our rail network and integrated city, regional town and inter-urban bus services.

The public transport network provides the population with access to employment, education, tourism and public amenities. Businesses are dependent on transport for customers, employees and service delivery. The network underpins economic activity and ongoing improvements in the capacity, frequency and connectivity of services will drive increases in productivity and employment, resulting in increased economic output.

At the CIÉ Group we are committed to working with our partners to develop the public transport network, support enterprise and employment, and extend the provision of a vital service across the population and commercial sector.

*Example: Dublin Bus customers alone account for 39% of retail spend in Dublin’s city centre.*

In Ireland, congestion is choking urban areas impacting negatively on the economy and health and wellbeing of our population. Projections of commuting trends predict further deterioration, with commuting journey times to increase by 35% nationally by 2033. The annual cost of congestion in the GDA is projected to rise to €2bn within this time frame, in the absence of intervention. The private car is responsible for 74% of all journeys in Ireland with consequences for congestion and rising greenhouse gas (GHG) emissions. A shift to more sustainable modes of transport will be crucial if we are to limit the impact of congestion on our nation’s economic growth and productivity.

Together with our partners: The DTTaS, the NTA, NewEra and Local Authorities, the CIÉ Group is working to address congestion by growing capacity and providing a quality transport service.

Under Project Ireland 2040 and the National Development Plan 2027, we are undertaking a programme of network investment and fleet modernisation, working to deliver a high quality, attractive and integrated



national service. The service will see an increase in capacity, efficiency and connectivity, unlocking the value of the public transport network, delivering infrastructure development and enabling economic growth.

The investment programme envisages over 8.6 billion euro worth of investment to deliver Bus Connects in Dublin, Cork and other major cities; upgrades and reinforcement of the rail network nationally; and, the Dart expansion project, providing fast, high frequency electrified services on the commuter network in the Greater Dublin Area. The Dart expansion programme will include new stations to provide interchanges with bus, LUAS and Metro networks and the provision of the Dart Underground programme in the future. In our regional cities, development of projects under Project Ireland 2040 can make public transport more sustainable, by ensuring capacity investment and residential and commercial developments are complimentary. Projects such as the Metropolitan Area Transportation Strategy for Cork and similar initiatives underway in Limerick, Galway and Waterford ensure that cities earmarked for growth, can do so sustainably. If we are to meet the challenges of strong passenger demand and drive further modal shift, it will be necessary to ensure planning and investment in our transport assets.

## Sustainable Development

The CIÉ Group is one of the largest landowners in Ireland. We are committed to developing and integrating transport orientated development (TOD) into CIÉ land developments, to achieve compact growth and sustainable mobility. TOD is an approach to urban development that provides residential, business and leisure space within walking distance of public transport and has been used successfully internationally to enhance development around major transport hubs.

*“We consider our approach to TOD for our property development as a cornerstone of our sustainability strategy”*

With unique property assets and hubs in cities and towns across Ireland, CIÉ Group Property has the potential to optimise the provision of housing, employment, public services and leisure space in close proximity to frequent, high-quality transport services, in line with the principles of TOD. This will be achieved in partnership with the Land Development Agency and aligned with the clear policy and strategic goals of Project Ireland 2040, strengthening our cities and regions, and supporting the development of an inclusive economy.

The CIÉ Group recognises the potential for integration of active travel and public transport and will continue to work with partners and stakeholders in assisting the delivery of an integrated transport infrastructure and an enhanced public realm. We consider our approach to property development, aligned with the principles of TOD, a cornerstone of our sustainability strategy. Not only does TOD deliver compact growth and encourage sustainable travel, but it also generates investment and amenities for the local community.

Currently the CIÉ Group is developing key property sites to support TOD and is working with local authorities, the Land Development Agency and other stakeholders to underpin sustainable transport development. Plans are underway for development of Heuston Station, Limerick Colbert Station and Galway Ceannt Station. Dublin Bus and Bus Éireann have identified opportunities for providing TOD site development



as it undergoes a structural review of depots, to adjust to expanding fleet and accommodation of alternative fuel technologies.

The CIÉ Group have enhanced the development of the public realm and tourism sector by facilitating the reallocation of disused rail lines for the development of Greenways across Ireland.

## **Sustainable Mobility**

A single, double decker bus has the ability to remove approximately 80 private cars from our roads and a commuter train can carry over 1,000 passengers, providing sustainable transport options. Public transport usage and priority represents a solution for moving large numbers of commuters, easing congestion and facilitating the commuter and passenger growth associated with an expanding economy and growing population.

Together with our partners, the CIÉ Group is working to grow capacity and expand our network to facilitate more sustainable mobility patterns in Ireland. Current projects such as the Bus Connects and DART Expansion programmes will contribute towards this aim, expanding capacity and improving frequency along key commuter routes. The Bus Connects projects will tackle congestion directly, whereby a core bus corridor project will deliver journey time savings of up to 40-50% on each corridor and greatly enhance quality options for commuters, including active travel. The CIÉ Group supports the delivery of projects such as Bus Connects and the DART Expansion and sees them as critical components of delivering fast, efficient, low carbon transports in the future.

The use of demand management measures to reduce private car dependency and facilitate the use of public transport and active travel has been successful in other major international cities. The delivery of projects that grow capacity and expand our network, along with supporting demand management measures has the potential to transform urban congestion and transport choices.

Furthermore, in order to achieve a shift to more sustainable transport modes the full journey experience must be accounted for. For many public transport customers, active travel (such as walking and cycling) form part of their complete journeys. As part of the planned development of the CIÉ Group transport network, we are seeking to embed the emergence of active travel and micro mobility facilities and related new technologies to improve the full journey experience for our customers.

Our aim is to improve the efficiency and experience of the full journey by enabling an integrated multimodal sustainable transport network. This will involve the provision of further active travel infrastructure and the facilitation of a range of active mobility providers in close proximity to CIÉ Group services. Increasingly this will include, facilities for cyclists; city bikes; micro mobility services such as e-scooters (subject to legislative change) and electric bike providers. Where shared car providers are established, the CIÉ Group can also look to facilitate their integration into the passenger experience. Intelligent transport systems such as mobility-as-a-service (MaaS) type systems, that offer a more customer-centric experience, have been shown to drive real behavioural change and will also be a key lever in increasing the permeability of multi-modal transport.

## 2.3 PILLAR TWO: SOCIAL

**Goal:** Foster a diverse and inclusive society by ensuring access and opportunity for all.



### Building Inclusivity and Diversity and Fostering Thriving Communities

Public transport plays a critical role in supporting the development of urban and rural communities. This is outlined in our legislation along with other key social elements of our remit. The Transport Act 1958 states:

*“It shall be the general duty of the [CIÉ] Board to provide reasonable, efficient and economical transport services with due regard to safety of operation, the encouragement of national economic development and the maintenance of reasonable conditions of employment for its employees.”*

This sentiment is continued through our commitment to the delivery of SDG 11, which envisages the provision of safe, affordable, accessible and sustainable transport systems for all.

Interacting with customers daily, we have visibility of the challenges of accessing employment, educational opportunities and management of the daily commute. For many, the use of public transport is essential for access to education, employment or basic public services like health care. The CIÉ Group values the importance of delivering on our public service obligations and our role in ensuring the rights and quality of life of Irish citizens are upheld.

Our services connect villages, towns and cities, providing circulation of the population and sustaining community cohesion. These functions are particularly pertinent in rural communities, which often have low-density settlement patterns and long distances between housing and key facilities.

Our rail and regional bus service under Bus Éireann, play a crucial role in connecting rural communities, offering regular daily services and often providing the only public transport link in many rural areas. In addition, Bus Éireann operates the School Transport Scheme on behalf of the Department of Education and Skills. The scheme provides over 120,000 school children every day of the school term, primarily in rural communities across Ireland, with safe, efficient and reliable school transport.



Whilst maintaining the alignment of our core business to our public transport obligations we are adapting to the changing needs of our customers and an evolving economy. We are delivering a range of new services aimed at improving standards of accessibility; providing customer focused routes; and improving the timespan of services, such as new 24-hour and extended late night services in our bus companies.

Recognising the importance of rail stations in communities with many acting as the centre point of towns across the country, we have built a network of local partners to support and foster community wellbeing. This is evident in the delivery of the All Ireland pollinator plan across our network and the many partnerships of train stations with local youth and residential community groups. Our bus companies also recognise their role in the community and endeavour to support the development of community groups, exemplified by initiatives across the country.

Dublin Bus has been supporting grassroots voluntary and community groups across the GDA through the Community Spirit Awards. The Community Spirit Awards were initiated to recognise and support the invaluable work undertaken each day by local groups located within the Dublin Bus network. The programme supports the development of new projects and raise community spirit in local communities. Bus Éireann conduct 'Keep Safe' events nationwide in conjunction with the Health and Safety Authority (HSA) in which Bus Éireann staff teach children across the country about school transport safety.

The CIÉ Group work to fostering a dynamic and equal society by valuing diversity in our workforce and prioritising equal access to services for our customer base. In our workforce of over 10,500 employees, we believe that ensuring inclusive conditions and creating opportunities for diversity is the cornerstone of a productive, open and effective culture. The variety of different beliefs, experience and backgrounds of our workforce is what we believe makes for a dynamic, open and creative environment that brings with it a wealth of experience and perspective. In Dublin Bus for example, the workforce boasts 67 different nationalities and employs members from the Traveller Community, the LGBT Community and a diverse range of religious backgrounds.

Fostering an inclusive culture of equality of opportunity is prioritised within the CIÉ Group. Providing opportunities for female leadership at all levels of decision-making is an important part of our culture. We are proud that we have achieved close to parity in terms of gender representation across the boards of our companies with Dublin Bus having 44% female board members, Iarnród Éireann 56% and Bus Éireann 38%.

Our operating companies have also been proactively implementing programmes to promote gender equality and female participation. This year has seen the launch of female driver recruitment programmes in both Dublin Bus and Bus Éireann. In Dublin Bus, female drivers account for only 4% of the driver population and this number is hoped to be doubled over the next few years. In parallel, Bus Éireann has set a target of a 50% increase in female drivers by 2021. Iarnród Éireann, which is a large recruiter of (STEM) 'science, technology, engineering and mathematics' graduates has also been actively pursuing recruitment of female graduates.



## Accessibility

Accessibility has been a central focus for the CIÉ Group and the NTA in recent years. Significant progress has been achieved in ensuring that transport infrastructure is accessible, easy to use and safe for those with disabilities.

For our rail network, Iarnród Éireann has implemented a plan to refurbish stations and trains to accommodate the needs of mobility and sensory impaired passengers and has delivered accessibility improvements at 80 stations since the late 1990's.

Dublin Bus along with the NTA, has overseen the transition to fully accessible bus services and to a fleet that is 100% wheelchair accessible, with designated wheelchair spaces. The recent fleet expansion saw hundreds of buses now having the capacity for both a wheelchair user and a buggy. There are also automated stop announcements for the visually impaired and braille stop request buttons. There is room for assistance dogs on board buses, with no limit to the number of assistance dogs providing there is space on board.

Accessibility across the Bus Éireann network continues to improve with the introduction of more low entry vehicles across the nationwide network. These vehicles have many on-board benefits including audio and visual announcements. Bus Éireann continues to work closely with the NTA on improving infrastructure accessibility at regional bus stations.

## Safety

Our commitment to safety is paramount and extends not only to our passengers, but also our employees. In recent years, we have seen a growing number of passengers using our services and increased volumes of commuters using all modes of transport sharing road space with our buses. These changes represent a challenge in terms of maintaining safety standards. At the CIÉ Group we are committed to adapting effectively to these changing circumstances by adopting the highest technical safety standards and practices; prioritising staff training; raising awareness of safety and security procedures amongst our passengers. We believe that these measures form the foundation of an effective safety culture that can execute robust procedures to ensure protection.

During the outbreak of the COVID-19 pandemic in early 2020, public transport has played a critical role in transporting employees of essential services safely. To ensure the safety of employees and customers a comprehensive hygiene and sanitisation regime has been put in place. This includes frequent cleaning and disinfection of fleet, train stations, depots and termini. We have provided extensive signage regarding social distancing for staff and customers. We have also implemented measures specific to the safety of our staff, including the provision of personal hand sanitiser and wipes; trials of portable screens on fleet; and issuing of face coverings to frontline employees. We continue to monitor the national public health guidance and are exploring technical solutions to increased safety measures.

## 2.4 PILLAR THREE: ENVIRONMENTAL

**Goal:** Work with partners to lead the transition to a low emissions transport network and ensure the protection of natural capital and infrastructure at risk of climate-related disruption.



### Climate and Energy Efficiency

The 'Paris Agreement 2015' required Ireland to deliver a 20% reduction in non-emission traded sector greenhouse gas (GHG) emissions by 2020 (relative to 2005 levels) and an improvement in energy efficiency of 33% by 2020. The Environmental Protection Agency (EPA) estimates that in a best-case scenario, Ireland will have achieved a one percent reduction in emission in the non-traded sector by 2020, instead of the 20% target. Transport is a key component of our national emission figures, contributing to approximately 20% of all emissions, growing by 10% since 2013.

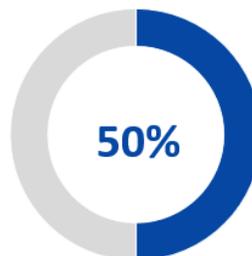
The Climate Advisory Council published its Climate Action Plan 2019 (the Plan) in 2019. This outlines a national strategy to work toward 80% or near net zero emissions by 2050. The Plan establishes both national and sectoral targets to reduce emissions by 2030 specifically. It shows that recent growth in emissions, particularly from Industry, agriculture, and transport puts Ireland on a trajectory to be over 25% off target for the next 2021-2030 accounting period.

Remedial actions outlined in the Plan, puts an onus on the public service to lead the way. Public sector targets are set on a 30% reduction in GHG emissions and a 50% improvement in energy efficiency by 2030, relative to 2005 levels. Our role in addressing the climate crisis is to provide an alternative mode of sustainable transport, taking private cars off the road and to drive the transformation to a greener, low emissions transport network. The challenge is compounded as we undertake a planned expansion to meet expected passenger growth across all services. Along with the NTA and the DTTAs, we are planning for high volume passenger demand in the long term and a transformation of fleet to lower emission alternative technologies. This strategy requires planning,



#### Total CO2 Emissions by 2030

In line with the Climate Action Plan (2019) the CIÉ Group aims to reduce total CO2 emissions by 30%, relative to 2005 levels, by 2030.



#### Energy Efficiency by 2030

In line with the Climate Action Plan (2019) the CIÉ Group aims to improve energy efficiency by 50%, relative to 2005 levels, by 2030.

investment and logistical reengineering to accommodate charging and refuelling infrastructure for a mix of low emission fleet technologies.

## Enabling Sustainable Transport Choices

Decisions on what mode of transport to use for personal travel are generally made at the level of the individual, with choices being made based on a persons’ unique set of incentives, constraints and personal preference. In Ireland the carbon intensity of our modes of choice is very high, with the transport sector acting as the second largest contributor to national GHG emissions (19.8% of total). This figure will need to decrease dramatically if we are to achieve our national climate targets. The private car remains the largest source of GHG emissions in the transport sector accounting for 51.5% of total transport emissions. Medium to long-distance land transport decisions often involve a trade-off between the private car and public transport (given average time and cost constraints). As shown in the below image, the choice to travel by public transport, is significantly less carbon intensive than the internal combustion engine private car.



In order for individuals to choose public transport over the combustion engine private car, public transport must represent a more attractive option. Accessibility, cost, reliability, speed and comfort all factor into the ease of use and the attractiveness of the decision to travel by public transport.

At the CIÉ Group, we are working to expand capacity and improve accessibility, such that public transport represents a viable transport option for as large a proportion of the population as possible as well as simultaneously lowering the carbon emissions of public transport further. Our ultimate goal is to provide the population of Ireland with an easily accessible, near zero emission, attractive public transport service. We also recognise that in order to generate a shift to more sustainable transport modes the full journey experience of

the customer must be accounted for. Therefore, we are working to embed the emergence of new technologies, micro mobility and the permeability with the public transport network.

## **Responsible Consumption and Production**

At the CIÉ Group we are committed to environmental protection, enhancing biodiversity and the circular economy. We seek to minimise the impact of our services on the environment and are investing in a range of projects that invest in our biodiversity and natural capital. To improve circularity, we are raising our ambition in terms of waste management across the Group and are committed to continuous improvement and performance. The CIÉ Group takes an all-encompassing approach to sustainability, this will include prioritising environmental practices such as: embodying the principles of the circular economy where possible and prioritising the mitigation of air, water and soil pollutants; integrating climate resiliency into our operations; and enhancing biodiversity and investing in natural capital.

## **Carbon Disclosure Project Reporting**

The CIÉ Group is working to achieve our climate targets and is joining organisations that publicly commit and communicate their ambition, by participating in the Carbon Disclosure Programme (CDP). An evaluation of our performance by CDP will give us a baseline for our carbon footprint and carbon governance for the Group. CIÉ Group will finalise its review for CDP in 2020 and will use the base line rating to improve carbon management throughout the Group and to clarify related Scope 3 emissions emanating from our supply chain and other indirect emissions.



### 3 THE CIÉ GROUP SUSTAINABILITY TARGETS AND AMBITIONS

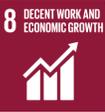
The CIÉ Group’s 2020 targets, long-term ambitions and the SDGs relevant to each target and ambition, are outlined below, in priority areas of: Biodiversity, Climate Resilience, Climate Action, Transport-oriented Development, Responsible Consumption and Production, Accessibility, Health and Wellbeing, Gender Equality and Equal Opportunity, Community Engagement and Heritage.

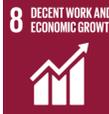
Area	2020 Target	Long-term Ambition	Page
<p><b>Biodiversity</b></p>    	<p>Implement ten biodiversity / pollinator plans at bus and train stations, in partnership with the National Biodiversity Data Centre and local community groups.</p>	<p>Roll out Biodiversity / Pollinator Plans for at least five bus and train stations across the CIÉ Group network annually, in collaboration with the national biodiversity data centre and local community groups to</p> <p>Implement actions outlined in the “Pollinator Friendly management of Transport Corridors” guidelines by 2025.</p>	53
<p><b>Biodiversity</b></p>    	<p>Commence planting of 4.15 hectares of native woodland on CIÉ Group land in partnership with the Department of Agriculture, Food and the Marine (DAFM) and the National Parks and wildlife Service (NPWS). Equating to 25 tonnes of carbon sequestered per annum over the next hundred years.</p>	<p>Implement and expand native planting on CIÉ Group lands where appropriate, by 2030.</p>	54
<p><b>Climate Resilience</b></p>    	<p>Adopt risk modelling and vulnerability assessment tools, to assess climate risk of assets against impacts of coastal erosion and flooding.</p>	<p>Publish a CIÉ Group Climate Adaptation Plan by 2021 guided by vulnerability assessments.</p>	56

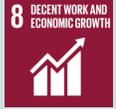
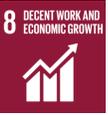
<p><b>Climate Resilience</b></p>    	<p>Collaborate with stakeholders, government departments and local authorities to plan for adaptation to coastal erosion and climate related weather conditions.</p>	<p>Deliver mitigation measures in collaboration with stakeholders to ensure at-risk infrastructure and natural capital is protected from climate related risk.</p>	<p>56</p>
<p><b>Climate Action</b></p>    	<p>Complete review of CIÉ Group carbon management performance for independent accreditation from the Carbon Disclosure Programme (CDP).</p>	<p>Develop carbon reporting to incorporate an increased number of Scope 3 GHG emissions and incorporate learnings from initial CDP response into decarbonisation strategy.</p>	<p>19</p>
<p><b>Climate Action</b></p>   	<p>Consolidate a CIÉ Group energy efficiency strategy that includes a process for achieving mid-term climate action targets.</p>	<p>Implement targeted energy efficiency improvement projects to achieve the public sector target of 50% energy efficiency improvement by 2030, notwithstanding expanding fleet capacity.</p>	<p>43</p>
<p><b>Climate Action</b></p>    	<p>Explore emerging solutions for behind the meter renewable energy power production.</p>	<p>Adopt technical and market innovations to deliver on public sector energy efficiency targets for 2030.</p>	<p>44</p>

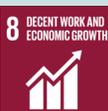
<p><b>Climate Action</b></p>     	<p>Complete a review of supply chain options for potential integration of biofuels on bus fleet.</p>	<p>Introduce targeted pilot of biofuel usage.</p>	<p>44</p>
<p><b>Climate Action</b></p>     	<p>In partnership, implement Hydrogen Mobility Ireland trial to deploy three hydrogen zero direct emission vehicles, commencing year end 2020.</p>	<p>Deliver the transition to lower emission vehicle fleet across the public transport network by facilitating innovation in alternative fuel technology.</p>	<p>44</p>
<p><b>Climate Action</b></p>    	<p>Deploy electric vehicle buses to Bus Éireann road fleet in Athlone and install charging facilities at several Bus Éireann bus depots.</p>	<p>Achieve 50% of Bus Éireann fleet composed of electric buses with the remaining 50% consisting of Euro VI engines, by 2030.</p>	<p>45</p>

<p><b>Climate Action</b></p>    	<p>Continue roll out of eco-driving education across the CIÉ Group. And, collaborate with the SEAI Behavioural Economics Unit to develop complementary eco-feedback techniques.</p>	<p>Reduce fuel usage and become a global leader in eco-driving research and behaviourally informed energy efficiency policy through the introduction of innovative programmes in collaboration with the SEAI Behavioural Economics Unit.</p>	<p>60</p>
<p><b>Climate Action</b></p>    	<p>Commence the commission of up to 100 diesel hybrid buses with plug-in capability across city, town and inter-urban bus fleets.</p>	<p>Achieve 50% of Dublin Bus fleet composed of diesel hybrids and battery electric buses by 2030, with the remaining 50% consisting of Euro VI engines.</p>	<p>47</p>
<p><b>Climate Action</b></p>    	<p>Create a community of practice across Bus Éireann, Dublin Bus and Iarnród Éireann specific to circular economy and energy efficiency projects.</p>	<p>Develop in-house best practice to deliver public sector energy efficiency targets for 2030.</p>	
<p><b>Climate Action</b></p>   	<p>Adopt group-wide usage of diesel exhaust fluid treatment to reduce exhaust emissions for both rail and bus fleets</p>	<p>Mitigate harmful exhaust after-treatment emissions across public transport fleet and contribute towards our overall emissions reduction targets.</p>	<p>43</p>

<p><b>Climate Action</b></p>     	<p>By year end implement ICR Gearbox upgrades on selected commuter train fleet improving GHG emissions 15-20% and implement hybrid drive systems on intercity railcars, leading to further 10% GHG emission reduction.</p>	<p>Implement suite of measures to ensure 80% of Irish rail journeys are free of direct emissions by 2027. Including:</p> <ul style="list-style-type: none"> <li>• Increased electrification of commuter rail network through DART Expansion programme.</li> <li>• Delivery of up to 600 electric and battery electric carriages to expand rail services.</li> </ul>	<p>51</p>
<p><b>Climate Action</b></p>    	<p>Achieve 60% of Bus Éireann bus fleet at Euro VI emission standards.</p>	<p>Achieve 100% of Bus Éireann non-electric fleet at Euro VI emission standards or better by 2030.</p>	<p>46</p>
<p><b>Climate Action</b></p>     	<p>Develop strategy for conversion or replacement of Expressway coach and school bus fleet to meet clean vehicle directive standards.</p>	<p>Deliver the transition to lower emission vehicle fleet across CIÉ Group operations, in accordance with the Clean Vehicle Directive targets.</p>	<p>46</p>

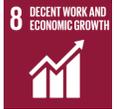
<p><b>Climate Action</b></p>      	<p>Partner with the SEAI Behavioural Economics Unit and the UCD Geary Institute for Public Policy to incorporate behavioural insights into Group sustainability strategy.</p>	<p>With partners, implement a behavioural change communication strategy to promote sustainable travel, internal energy efficiency and waste management.</p>	<p>60</p>
<p><b>Climate Action</b></p>    	<p>Participate in industry policy working groups bringing technical and commercial expertise in sustainable transport policy development.</p>	<p>Support and influence the development of national and international regulatory policy in relation to sustainable land transport.</p>	
<p><b>Climate Action</b></p>     	<p>Develop a stakeholder communications strategy to promote collaboration and to contribute to national transport and infrastructure planning for sustainable mobility.</p>	<p>Support and influence the development of national and international regulatory policy and partner with stakeholders to support sustainable mobility and delivery of Climate Action Plan targets for transport.</p>	

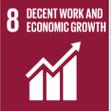
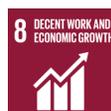
<p><b>Climate Action</b></p>     	<p>Review feasibility of piloting green building technologies on CIÉ Group property, including green roofing, water harvesting and solar PV panels.</p>	<p>Implement Green Building Technologies on CIÉ Group buildings where feasible and effective.</p>	<p>67</p>
<p><b>Climate Action</b></p>     	<p>Develop infrastructure to roll out water harvesting scheme at Summerhill bus garage.</p>	<p>Deliver water harvesting schemes in Bus and train depots where feasible.</p>	<p>62</p>
<p><b>Climate Action</b></p>    	<p>Conduct an assessment of CIÉ Group building stock to ascertain opportunities for building energy performance improvement.</p>	<p>Enhance energy performance of CIÉ Group buildings to contribute towards the achievement of a 50% improvement in energy efficiency by 2030.</p>	<p>67</p>

<p><b>Climate Action</b></p>     	<p>Undertake a survey of operational sites to ascertain optimal location for hybrid, electric or vehicle charging infrastructure, including other low emission vehicle technologies.</p>	<p>Ensure planned transition to lower emission vehicle fleet across CIÉ Group operations, in accordance with the Clean Vehicle Directive targets.</p>	
<p><b>Transport-oriented Development</b></p>   	<p>Launch Masterplans for the 3 below sites, subject to market conditions, in 2020.</p> <ul style="list-style-type: none"> <li>• Heuston</li> <li>• Limerick</li> <li>• Galway</li> </ul>	<p>Prepare Masterplans and, in co-ordination with development partners, achieve planning permission and deliver schemes of development which optimise Transport Orientated Development (TOD) in all CIE Group Property Developments.</p>	64
<p><b>Transport-oriented Development</b></p>   	<p>Conduct a feasibility study to identify multi-purpose sites (residential, office, retail and operational) to support transport orientated development while retaining operational capability.</p>	<p>Develop multi-purpose bus depot sites at two locations by 2027 (dependent on successful feasibility studies).</p>	64
<p><b>Transport-oriented Development</b></p>    	<p>Review scope for including active travel and micro-mobility facilities and infrastructure in CIÉ property and development plans.</p>	<p>Collaborate with micro mobility providers to deploy micro-mobility options on CIÉ property and prioritise active travel facilities in line with transport orientated development.</p>	

<p><b>Responsible Consumption and Production</b></p>     	<p>Partner with the EPA to gain best practice insight into sustainable construction and development.</p>	<p>Develop sustainable construction and development guidelines by 2023.</p>	<p>58</p>
<p><b>Responsible Consumption and Production</b></p>    	<p>Refine and improve waste recycling practices, in collaboration with the Environmental Protection Agency (EPA), and work with waste providers to improve segregation strategies on general non-hazardous waste.</p>	<p>Achieve a 75% recycling rate by 2025 across the group.</p>	<p>58</p>
<p><b>Responsible Consumption and Production</b></p>     	<p>Refine and improve waste prevention practices, in collaboration with the EPA, in order to improve performance in initial focus areas of: office waste, site waste and IT end of life waste.</p>	<p>Achieve a 25% reduction in waste produced group-wide by 2025.</p>	<p>58</p>

<p><b>Responsible Consumption and Production</b></p>      	<p>Develop a waste-related behavioural change strategy, in partnership with the EPA, to focus on employee and passenger behavioural change.</p>	<p>Implement a CIÉ Group internal waste-related behavioural change strategy by 2022.</p> <p>And, implement a public awareness and behavioural change programme to support the circular economy on public transport by 2021.</p>	<p>58</p>
<p><b>Responsible Consumption and Production</b></p>   	<p>With the support of the EPA and the Green Teams National Programme, establish a 'Greening CIÉ' Steering Group.</p>	<p>Commence a Green Teams National Programme to seek training and support for environmental champions across the CIÉ Group.</p> <p>Promote staff engagement on sustainability in the workplace and incorporate learning into Preventing Food Waste and single-use plastics through initiatives with the EPA.</p>	<p>59</p>
<p><b>Responsible Consumption and Production</b></p>    	<p>Build on the large proportion of operations that have ISO14001 environmental management standards certification by achieving group-wide certification.</p>	<p>Continually minimize our environmental footprint and develop a symbiotic relationship with our surrounding natural environment through the use of best practice environmental management systems.</p>	

<p><b>Responsible Consumption and Production</b></p>     	<p>Review the CIÉ Group procurement processes for inclusion of green and sustainable criteria in procurement including:</p> <ul style="list-style-type: none"> <li>Review of tender processes and policy to include development inclusion of green and sustainable assessment criteria.</li> </ul>	<p>Implement a procurement policy that supports the national policy on green procurement standards across the CIÉ Group supply chain by 2022.</p>	<p>63</p>
<p><b>Responsible Consumption and Production</b></p>    	<p>Establish a group-wide green procurement expert working group to review existing procedures.</p>	<p>Develop in-house best practice on green procurement to support national policy on Green Public Procurement.</p>	<p>63</p>
<p><b>Accessibility</b></p>    	<p>Commission 42 low-floor coaches to improve accessibility to coach travel on regional towns and cities and inter-urban fleet services.</p>	<p>Achieve and maintain equally accessible services along city, regional town and inter-urban bus routes.</p>	<p>45</p>

<p><b>Accessibility</b></p>   	<p>Deliver, in partnership, accessible infrastructure at bus stations and stops, in particular in North-Western locations where there is no rail-link.</p>	<p>Achieve and maintain equally accessible services network-wide.</p>	<p>46</p>
<p><b>Health and Wellbeing</b></p>  	<p>Conduct a workplace employee wellness audit across the CIÉ Group.</p>	<p>Design, action and implement a plan deriving from the employee wellness audit, ultimately culminating in a CIÉ Group workplace health and wellbeing strategy.</p>	<p>68</p>
<p><b>Health and Wellbeing</b></p>  	<p>Pilot an I.T. Wellhub programme in specific CIÉ Group Organisations.</p>	<p>Launch the I.T. Wellhub programme across the CIÉ Group by 2025.</p>	<p>68</p>
<p><b>Health and Wellbeing</b></p>  	<p>Develop plan to expand KeepWell 'IBEC accreditation' across the CIÉ group.</p>	<p>Achieve KeepWell 'IBEC accreditation' across all CIÉ Group operations by 2025.</p>	<p>68</p>
<p><b>Gender Equality and Equal Opportunity</b></p> 	<p>Provide female employees with opportunities for leadership at all levels of decision-making within the CIÉ Group.</p>	<p>Achieve gender parity in terms of representation at senior management and board level by 2030.</p>	<p>69</p>
<p><b>Gender Equality and Equal Opportunity</b></p> 	<p>Build on the success of the recruitment drive of female drivers with further increases in female driver numbers.</p>	<p>Based on current figures, double female driver numbers in Dublin Bus and triple female driver numbers Bus Éireann by 2030</p>	<p>69</p>

<p><b>Community Engagement</b></p>   	<p>Develop CIÉ Group programmes for community engagement across different themes such as wellbeing, environmental education and safety.</p>	<p>Conduct pilot implementation across the CIÉ Group</p>	<p>73</p>
<p><b>Heritage</b></p>  	<p>Develop partnership to conserve and archive historic rail records to:</p> <ul style="list-style-type: none"> <li>• Creating an accurate catalogue.</li> <li>• assessing short, medium- and long-term conservation requirements.</li> <li>• Exploring feasibility of digitising the archive.</li> <li>• Enabling public access to records.</li> </ul>	<p>Adhere to conservation requirements whilst successfully digitising the historic CIÉ Group archive collection and allowing public access.</p>	<p>69</p>
<p><b>Heritage</b></p>    	<p>Develop knowledge and best practice approaches to maintaining structural heritage sites, which a view to the potential retrofitting of such sites through pilot investigations.</p>	<p>Enhance and protect our heritage, through the sustainable restoration and refurbishment of historical stations and workshops.</p>	<p>70</p>

## 4 KEY PERFORMANCE INDICATORS (KPIs)

The CIÉ Group sustainability key performance indicators (KPIs) are divided into Economic, Social and Environmental segments, reflecting our three-pillar strategy. Our key performance indicators will be used to measure progress towards our sustainability targets and ambitions.

### 4. THE CIÉ GROUP

#### Pillar One: Economic



##### Generating Economic Value

###### Connecting People

	2019	2018	2017
Passenger journeys (million)	281	275	263.5
Passenger journeys (% increase / decrease)	2.2	7.7	4.9

###### Sustainable Finance

	2019	2018	2017
Total Revenue (million)	1,359	1,315	1,238.5
Revenue Growth (%)	3.4	6.2	1.6
EBITDA (€m)	43	29	29
Net Deficit (€m)	(14)	(35)	(43)

#### Pillar Two: Social



##### Wellbeing, Gender Equality and Inclusivity in our Workforce

###### Investing in our workforce

	2019	2018	2017
Number of Employees	10,554	10,046	10,098

#### Pillar Three: Environmental



##### Climate Action and Air Quality

###### Greenhouse Gas (GHG) Emissions

	2019	2018	2017
Scope 1 -Direct Emissions (thousand tCO2e)	383.679	379.43	391.41
Scope 2 -Indirect Emissions from electricity purchased (thousand tCO2e)	21.334	23.657	26.325
Scope 3 -Indirect other (thousand tCO2e)	.266	.244	.226
Total emissions (thousand tCO2e)	405.465	403.34	394.94



<b>Energy Efficiency</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Bus Diesel (tCO <sub>2</sub> e)	145324	145139	140956
Train Diesel (tCO <sub>2</sub> e)	117126	115139	111794
Diesel for traction (tCO <sub>2</sub> e)	112552	110341	107557
Diesel Road vehicles (tCO <sub>2</sub> e)	3745	3877	3971
Electricity other (tCO <sub>2</sub> e)	13,435	15,186	17,020
Natural Gas (tCO <sub>2</sub> e)	5048	4844	4220
Kerosene (CO <sub>2</sub> e)	132	129	111
Total Energy Consumption (Scope 1&2) (tCO <sub>2</sub> e)	405507	403181	394895

## Operating Companies

### 4.2



### Pillar One: Economic



#### Generating Economic Value

##### Connecting People

	2019	2018	2017
Passenger journeys (million)	142	143	139
Passenger journeys (% increase)	5%	2.9%	8.1%
Passenger kilometres (million)	1,147	979	1,115
Customer satisfaction (passenger focus score)	74%	78%	82%
Number of buses in operation	1016	1010	1016

##### Sustainable Finance

Total Revenue (€) (Million)	263.0	263.3	251
Revenue Growth (%)	0	1.8	1.5

### Pillar Two: Social



#### Sustainable cities and communities

##### Community Engagement

	2019	2018	2017
Number of Groups awarded 'Community Spirit' funding grants	88	85	85
No. of Community Stakeholder Meetings held	27	23	18

##### Accessibility

Fully accessible stations/stops (%)	100%	100%	100%
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#### Wellbeing, Gender Equality and Inclusivity in our Workforce

##### Investing in our workforce

Number of Employees	3552	3432	3469
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##### Gender equality

	2019	2018	2017
Females employees (%)	7%	7%	7%
Women in Senior Management roles (%)	22%	22%	22%
Female Board members (%)	44%	44%	44%

##### Diversity

Non-Irish employees (%)	19%	19%	19%
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## Pillar Three: Environmental



Climate Action and Air Quality			
<b>Greenhouse Gas (GHG) Emissions</b>	2019	2018	2017
Scope 1 -Direct emissions (thousand tCO <sub>2</sub> e)	66.9	72.3	73.6
Scope 2 -Indirect emissions from electricity purchased (thousand tCO <sub>2</sub> e)	1.3	1.4	1.7
Scope 3 -Indirect other (thousand tCO <sub>2</sub> e)	0.137	0.082	0.065
Total emissions (thousand tCO <sub>2</sub> e)	68.4	73.8	75.3
TCO <sub>2</sub> e/passenger km	.0000602	.0000644	.0000676
Total number of cars off the road	160,000	179,000	n/a
<b>Energy Efficiency</b>			
Bus/train Diesel (thousand litres)	25,029	26,759	27,605
Electricity consumption for traction (MWh)	0	0	0
Electricity for fixed assets (MWh)	4,576	4,462	4,521
Electricity total (MWh)	4,576	4,462	4,521
Gas usage (MWh)	10,785	11,111	10,084
<b>Fleet Proportions</b>			
Fleet with Euro IV standard engine (%)	14	14	14
Fleet with Euro V standard engine (%)	15	15	15
Fleet with Euro VI standard engine (%)	56	46	36
Fleet with hybrid engine (%)	0.88	0	0
Fleet that are fully powered by electricity (%)	0	0	0
Fleet that are gas powered (%)	0	0	0
Average age of bus fleet (years)	7	6	6
<b>Responsible Consumption and Production</b>			
<b>Waste management</b>	2019	2018	2017
Total waste generated % increase / decrease	-2	19	-17
Waste recycled (tonnes)	195	189	144
Waste recycled/recovered (% of waste collected to be recycled)	76	75	80

## 4.3



### Pillar One: Economic



#### Generating Economic Value

##### Connecting People

	2019	2018	2017
Passenger journeys (millions)	89	84	79
Passenger journeys (% increase)	7%	6%	-2%
Customer satisfaction (passenger focus score) (%)	84%	89%	92%
Number of buses in operation	1,138	1,148	1,171
Regional bus punctuality (% increase)	5%	3%	n/a

##### Sustainable Finance

	2019	2018	2017
Total Revenue (€) (Million)	366.5	337.6	309.3
Revenue Growth (%)	+9%	+8%	-1%
EBITDA (€m)	8.8	9.7	2.9
Net Profit/(Deficit) (€m)	2.3	(6.4)	(23.7)

### Pillar Two: Social



#### Sustainable cities and communities

##### Community Engagement

	2019	2018	2017
Partner organisations/beneficiaries directly reached	13	12	10
No. of students transported under the School Transport Scheme per school day	120,800	117,800	115,500
No. of students transported per school day with special education needs	14,300	13,400	11,700

##### Accessibility

	2019	2018	2017
Fully accessible managed stations/stops (%)	75%	65%	65%

#### Wellbeing, Gender Equality and Inclusivity in our Workforce

##### Investing in our workforce

	2019	2018	2017
Number of Employees	2,727	2,562	2,446

##### Safety

	2019	2018	2017
Employee accident rate per 100 employees	1.32	1.76	2.04

##### Gender equality

	2019	2018	2017
Females employees (%)	9%	9%	9%
Women in Senior Management roles (%)	38%	25%	25%
Female Board members (%)	29%	29%	29%

##### Diversity

	2019	2018	2017
Non-Irish employees (%)	13%	15%	14%

## Pillar Three: Environmental



Climate Action and Air Quality			
<b>Greenhouse Gas (GHG) Emissions</b>	2019	2018	2017
Scope 1 -Direct emissions (thousand tCO <sub>2</sub> e)	76.54	73.01	67.94
Scope 2 -Indirect emissions from electricity purchased (thousand tCO <sub>2</sub> e)	1.72	1.97	2.21
Scope 3 -Indirect other (thousand tCO <sub>2</sub> e)	1.56	1.28	0.90
Total emissions (thousand tCO <sub>2</sub> e)	79.82	76.26	71.05
TCO <sub>2</sub> e / passenger journey	.000897	.000908	.000900
<b>Energy Efficiency</b>			
Bus/train diesel (thousands of litres of diesel)	30,226	28,491	26,605
Electricity total (MWh)	5,073	5,235	5,040
Gas usage (MWh)	7,196	6,101	4,263
Total Energy Consumption (MWh)	317,841	299,706	278,495
<b>Fleet Proportions</b>			
Service fleet with Euro VI standard engine (%)	53	43	34
Service fleet with hybrid engine (%)	0	0	0
Service fleet that are fully powered by electricity (%)	0	0	0
Fleet that are gas powered (%)	0	0	0
Average age of bus fleet (years)	10.7	n/a	n/a
<b>Responsible Consumption and Production</b>			
<b>Waste management</b>	2019	2018	2017
Total waste generated % increase / decrease)	+1%	+2%	-1%
Waste recycled/recovered (% of waste collected to be recycled)	16%	14%	13%

## Pillar One: Economic



### Generating Economic Value

Connecting People	2019	2018	2017
Passenger journeys (millions)	50.2	47.9	45.5
Passenger journeys (% increase)	5.1%	5.3%	6.3%
Sustainable Finance			
Total Revenue	n/a	280.9	264.8
Revenue Growth (%)	n/a	6.1%	8.3%
EBITDA (€m)	n/a	19.3	25.1
Net Deficit (€m)	n/a	(1.1)	(1.1)

## Pillar Two: Social



### Sustainable cities and communities

Community Engagement	2019	2018	2017
Partner organisations/beneficiaries directly reached	12	n/a	n/a

### Wellbeing, Gender Equality and Inclusivity in our Workforce

Investing in our employees	2019	2018	2017
Number of Employees	4009	3831	3761
Safety			
Accidents per 1,000 employees	15	13	15
Gender equality			
Females employees (%)	11	10	10
Women in senior management roles (%)	17		
Female Board members (%)	57	50	40

## Pillar Three: Environmental

<b>Climate Action and Air Quality</b>			
<b>Greenhouse Gas (GHG) Emissions</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Scope 1 -Direct Emissions (thousand tCO <sub>2</sub> e)	235.129	231.020	247.740
Scope 2 -Indirect Emissions from electricity purchased (thousand tCO <sub>2</sub> e)	18.474	20.557	22.775
Scope 3 -Indirect other (thousand tCO <sub>2</sub> e)	.057	.162	.161
Total emissions (thousand tCO <sub>2</sub> e)	253.765	251.740	247.740
TCO <sub>2</sub> e/ passenger km	.000105	.000110	.000116
<b>Energy Efficiency</b>			
Train fuel consumption (thousands of litres of diesel)	45,150	43,830	42,995
Electricity for traction (MWh)	27,695	26,222	25,240
Electricity for fixed assets (MWh)	35,791	37,031	36,816
Electricity total (MWh)	63,486	62,056	61,347
Gas usage (MWh)	9,278	9,032	8,600
Total Energy Consumption (MWh)	181400	178171	174998
<b>Fleet Proportions</b>			
Fleet with hybrid engine (%)	0	0	0
Fleet that are fully powered by electricity (%) (4 car sets -DART)	15	15	15
Fleet that are gas powered (%)	0	0	0
<b>Responsible Consumption and Production</b>			
<b>Waste management</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Total waste generated (% increase / decrease)	-34%	39%	61%
Waste recycled/recovered (% of waste collected to be recycled)	73	69	70
Number of waste upcycling projects completed with community groups	5	2	0

## 5 OUR SUSTAINABILITY PRIORITIES

The following sections will provide context to our sustainability goals and ambitions and is divided into 10 segments reflecting our priorities areas for sustainability, outlined below.

<p>Climate Action P42-53</p>		<p>Health and Wellbeing P69</p>	
<p>Biodiversity P54-55</p>		<p>Gender Equality and Equal Opportunity P70</p>	
<p>Climate Resilience P55-58</p>		<p>Heritage P71-73</p>	
<p>Responsible Consumption and Production P58-64</p>		<p>Community Engagement P74-76</p>	
<p>Transport-Oriented Development P65-68</p>		<p>Partnerships P78-79</p>	

## 6 CLIMATE ACTION

### 6.1 LEADING CLIMATE ACTION THROUGH SUSTAINABLE PUBLIC TRANSPORT

Now more than ever, there is a need for sustainable transport practices in Ireland. There is international consensus that achieving the main goal of the UNFCCC Paris Agreement 2015 “keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels” will be crucial to the viability of life on our planet in the future. Yet, the Irish Environmental Protection Agency has consistently stated that Ireland is “not on the right trajectory to meet longer term EU and national emission reduction commitments”. According to the ‘Climate Action Plan 2019’ Ireland’s Green House Gas emissions trajectory is 25% off target for the 2021-2030 period.

Emissions decrease through the use of public transport.

Compare average irish car vs CIÉ Companies’ CO<sub>2</sub>e per Passenger km



Ireland’s over reliance on the ‘internal combustion engine’ private car represents the main impediment to the lowering of GHG emissions in the land transport sector. We at CIÉ are committed to leading the necessary change in the trajectory of Ireland’s GHG emissions by providing an attractive, sustainable public transport service that entices passengers out of the private vehicle. This will involve working with our partners to deliver ambitious network expansion, energy efficiency and decarbonisation plans.

## 6.2 MODAL SHIFT

Public transport is an inherently sustainable mode of transport. One full double decker bus removes approximately 82 cars from the road freeing up valuable road space. This reduction in private cars on the road leads to a 92% reduction in CO2 produced per passenger km. As mentioned in the previous section, real progress in tackling emissions comes from a modal shift from the private car to public transport and active travel. Pre-Covid-19, across our bus and rail network, in line with economic activity, population growth and demographic changes demand for public transport services experienced strong growth.

This growth however is a trend across all modes of transport and is accompanied by growth in private car use. Creating a shift in the proportion of the population that choose public transport and active travel over the private car in the future will be crucial to managing air quality and reducing our national land transport GHG emissions. The CIÉ Group are determined to achieve the necessary shift, however, doing so will require substantial investment in the capacity of our services and in walking and cycling infrastructure in Ireland.

**CIÉ Group Passenger Numbers 2015-2019**



### **6.3 EMISSIONS MANAGEMENT AND SUSTAINABLE NETWORK EXPANSION**

The development and expansion of our services and the effective management of our energy output is central to our group strategy for sustainability. Together with our partners: The DTTaS, the NTA, NewEra and Local Authorities, the CIÉ Group is committed to leading the transition to a low emissions transport network. This will involve the delivery of ambitious network expansion, energy efficiency and decarbonisation plans. Significant modernisation and expansion plans for the rail and bus fleet under Project Ireland 2040 will enable improved emission management whilst increasing capacity. The population of Ireland is projected to grow by over 1 million to 5.7 million people by 2040, requiring additional investment in infrastructural to cater for increased passenger numbers. Along with our partners, we seek to improve efficiency to meet our climate action targets for 2030, whilst expanding capacity for population growth. To meet this challenge, we are developing partnerships and innovating to find alternative low emission fuels and modes of transport.

### **6.4 FLEET-RELATED INNOVATION AND MODERNISATION – BUS EXAMPLE**

Modernisation of the bus fleets for Dublin Bus and Bus Éireann will be delivered in partnership with the NTA in a phased fleet investment programme. This will see the procurement of over 600 clean vehicles over the coming years. Dublin Bus and Bus Éireann worked closely with the Department of Transport, Tourism and Sport in the trial of a number of alternative fuel buses that concluded in 2019. The different technologies tested included:

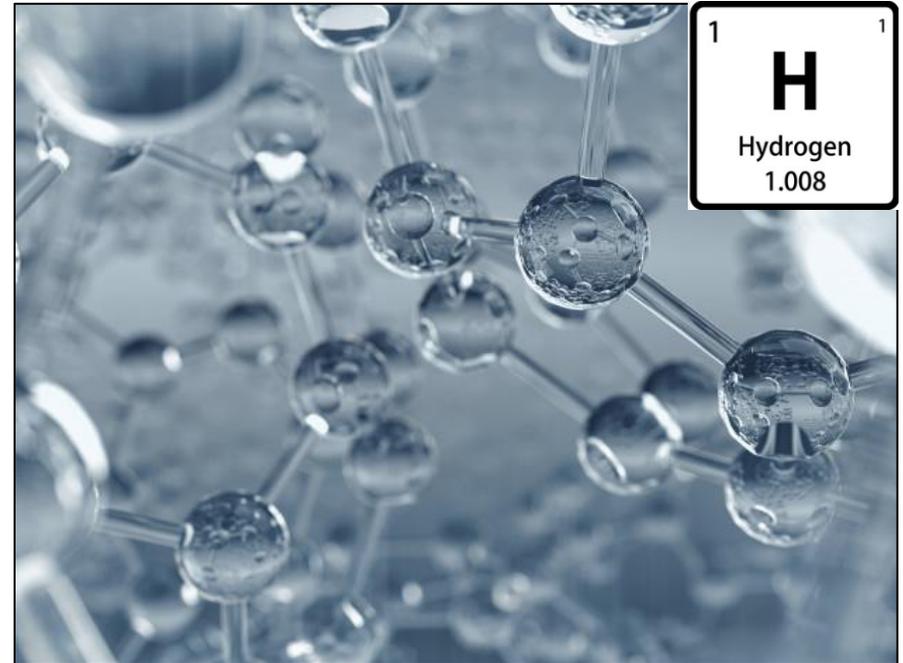
- Fully electric
- Electric hybrid
- Compressed natural gas/biogas
- Diesel buses retrofitted to modern Euro VI exhaust emission standards.

The tests allowed for performance analysis over a range of topographical conditions and considered not only CO2 emissions, but also the impact on air quality and the potential contribution towards sectoral renewable energy targets. Other considerations such as vehicle cost, fuel economy, availability and infrastructural requirements for each low-emission technology were also investigated. The trial concluded that based on a number of factors, including market availability, fuel efficiency and value for money that electric vehicles provide the best solution for urban bus services.

During the transition to an extensive electric fleet, plug-in hybrid buses provide an effective intermediate solution. The NTA have purchased 100 plug-in hybrid buses and have undergone the procurement process for future purchase of near zero emission vehicles. The introduction electric

vehicle city buses are also planned for Athlone in 2021, by the NTA and Bus Éireann. Subject to the learnings of the pilot, additional city buses should be introduced in other regional towns. It is likely that for the foreseeable future, the bus fleet will comprise of a combination of low emission fuel technologies.

Technical innovations are increasingly offering viable alternative fuels such as hydrogen and biogas amongst others. The CIÉ Group is committed to supporting programmes which offer practical solutions. Dublin Bus and Bus Éireann are members of the Hydrogen Mobility Ireland Steering Group, which is made up of industry partners and public transport operators with the aim of trialling the supply and use of hydrogen in the public transport system. This group has formulated a strategy to include hydrogen as a fuel in both public and private vehicles. Technical experts from both Bus Éireann and Dublin Bus are working with the Steering Group and will assist the implementation of a trial of hydrogen powered buses in Dublin city. Biofuels are also being considered as a short-term solution while alternative technology develops as they have proven effective at reducing emissions.



A parallel programme to the Bus fleet conversion, involving route optimisation and operational improvements for carbon and emission mitigation is also in progress. This is largely driven by the Bus Connects programme and a range of operational energy improvements and route optimisation. The transition to low emission vehicles has the benefit of reducing all GHG emissions and thus improving air quality. The cleaner vehicles also tend to require less maintenance and reduce noise, in comparison to the older diesel models. Similarly, investment in low carbon technologies such as the introduction of new transmission gear boxes and hybrid engines for the commuter train fleet will yield both energy efficiencies, financial returns and health externalities for employees, the public and the environment (this will be expanded on in the later summary of Operating companies activity section).



## 6.5 BUS ÉIREANN – EMISSIONS MANAGEMENT AND SUSTAINABLE NETWORK EXPANSION

With an increase in passenger numbers of 7% in 2019, representing five million extra journeys, Bus Éireann's recent focus has been to upgrade and expand services to adapt to customer needs. A range of customer-focused service improvements have been introduced for timetables, new routes added, and 24-hour city service launched in Cork in 2019. Notwithstanding these passenger number increases however, Bus Éireann has also achieved a 7% reduction in greenhouse gas emissions since 2009 and a 14.6% improvement in energy efficiency.

Bus Éireann aims to be one of the most environmentally friendly transport companies in Europe. A number of initiatives aimed at delivering this aim and achieving climate targets for 2030 are set out in Bus Éireann's 'Destination 2023' strategy that has delivered over 40 network enhancements; punctuality improvements and service delivery plans, providing a greatly enhance regional bus offering.

The Destination 2023 plan and capital expenditure strategy also encompasses a five-year capital expenditure programme, for low emission vehicle purchase. The five-year capital spending programme is a key support for growth and service capacity expansion.

Whilst the Bus Éireann fleet migrates to hybrid electric, battery electric and possibly Hydrogen fuel cell electric, we will need to provide matching charging and maintenance infrastructure and re-focus our employee training programmes. The first stage in the transition is set for late 2020, with the delivery of new hybrid electric vehicles. Further orders are being agreed with the NTA for the 2021-2024 period. The Euro VI cleaner engine models, which now make up approximately 53% of the service fleet will also rise to 60% by the end of 2020, under the expenditure programme.

Bus Éireann's long-term goal for fleet expansion is to achieve 100% of service fleet at Euro VI emission standards or better by 2030. A key component of Bus Éireann meeting its climate targets will be to plan for modernisation of the Expressway and school bus fleet to low emissions standards and retirement of older vehicles from the fleet.

### Total CO2 Reduction since 2009



Bus Éireann have reduced total CO2 emissions by 7% since 2009, to 79.8mkgCO<sub>2</sub> equivalent



Transition to low emission vehicles	Infrastructure upgrades	Energy efficiency
<ul style="list-style-type: none"> <li>• Increase proportion of Euro VI models from 53% of service fleet to 60% by end 2020.</li> <li>• Introduce 26 new hybrid electric fleet to be delivered in 2020.</li> <li>• Plan for additional hybrid electric orders with NTA for 2021-2024.</li> <li>• Implement Athlone pilot EV bus project to start in 2021. Pilot to offer full town service for seven bus services to move to electric vehicles.</li> <li>• Delivery of Hydrogen Mobility Ireland trial of hydrogen-powered buses, commencing in 2021.</li> <li>• Provide for conversion of service fleet to electric vehicle, commencing with the introduction of 15 electric vehicles in 2020.</li> </ul>	<p>Under Destination 2023 infrastructure investment projects due to take place in 2020 will include:</p> <ul style="list-style-type: none"> <li>• Limerick depot (Roxboro road site) construction and Colbert bus station design and development.</li> <li>• Redesign all main depots and garages to accommodate electric vehicles.</li> <li>• Deliver Cork city expansion site.</li> <li>• Deliver Busáras redevelopment and GDA depot strategy.</li> <li>• Commence provision of charging facilities, garage infrastructure and training as part of hybrid and electric bus introduction.</li> <li>• Galway bus and rail station development plan.</li> </ul>	<ul style="list-style-type: none"> <li>• 14.6% energy efficiency improvement since 2009 baseline year.</li> <li>• 15% efficiency improvement target for 2020 working to achieve the public body target of 50% efficiency improvement by 2030.</li> <li>• CO<sub>2</sub> emissions have been reduced by 7% since 2009 to 79.8mkgCO<sub>2</sub> equivalent.</li> <li>• Measurement details being finalised by Government as part of European carbon-based accounting and policy (CAP).</li> <li>• The delivery of the fleet and infrastructure capital plan is critical to Bus Éireann achieving the carbon-based accounting and policy (CAP) target.</li> <li>• Driver behaviour – EcoDrive fleet telematics programme launched in February 2020.</li> <li>• Provision of driver training to be introduced to support the rollout of telematics.</li> <li>• Dedicated Energy Performance Officer (EPO) and a new Energy Team were established in 2019 and a new Energy Policy adopted.</li> <li>• Stage 1 of ISO 50001 completed in January 2020, with aim for full certification in 2020.</li> </ul>

**Further short-term projects being implemented by Bus Éireann include:**

- The deployment of electric buses and back-up infrastructure in Athlone, to enable full town service to move to electric vehicle bus fleet. The service is planned to commence in 2021.
- The deployment of the first batch of 26 plug-in hybrid buses in early 2021.
- Implementation of the Hydrogen Mobility Ireland bus trial, with the deployment of three hydrogen fuel cell EVs bus trial in Greater Dublin Area, commencing in 2021.
- Delivery of an electric vehicle road service fleet, with charging facilities installed at several Bus Éireann locations over 2020. The fleet will be used for maintenance and operational service.
- Bus Éireann has also achieved ISO50001 energy management certification in February 2020, which is an important step in ensuring our energy management processes are best practice. Recently implemented vehicle telematics across the Bus Éireann service fleet, under the 'EcoDrive' banner, are also envisaged to make an impact on fuel usage. Related driver training has been delivered to support Bus Éireann's commitment that our vehicles will be driven in a manner that minimises fuel usage and improves customer comfort and safety.

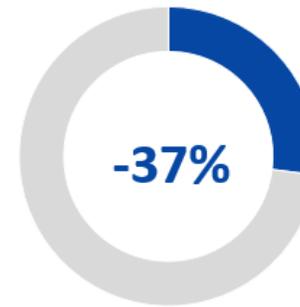
Further energy efficiency improvement efforts such as the replacement of the Bus Éireann main operations centre at Roxboro in Limerick with a modern, energy efficient accommodation building is also underway. Work on this project due to commence in August 2020. Bus Éireann garage facility improvements will also continue in 2020, with the electrical and safety system upgrade of Donegal, Stranorlar, Longford, Drogheda and Cavan. A second operating location will be developed in Cork city this year, to enable continued service expansion and planning will be sought for the redevelopment of Busáras in Dublin.

## 6.6 DUBLIN BUS – EMISSIONS MANAGEMENT AND SUSTAINABLE NETWORK EXPANSION

Dublin Bus carries over 142 million passengers a year, equating to approximately 160,000 cars being taken off the road every day. In the future, Dublin Bus aims to expand capacity while improving emissions, time efficiency and reliability. A large part of this will involve collaborating with the NTA to deliver the Dublin Bus Connects investment programme and the network re-design. In tandem with this expansion, Dublin Bus has signed the carbon pledge, committing to reducing direct carbon footprint by 50% by 2030.

In partnership with the NTA, the fleet replacement programme has led to over 50% of the fleet being upgraded to meet the Euro VI engine emission standard; the highest standard possible in terms of emissions. Euro VI technologies reduce the level of harmful exhaust emissions using diesel particulate filters (DPF) and exhaust gas recirculation (EGR). The selective catalyst reduction (SCR) system Ad-Blue is also added to further reduce emissions. From July 2019, the National Transport Authority no longer procures diesel only buses, with alternative fuel low emission diesel hybrid variants currently being procured.

By 2030 it is expected that the Dublin Bus fleet will consist of at least 50% Euro VI engines with the other 50% made up of diesel hybrid, battery electric and possibly hydrogen buses. Managing air quality is also a priority and Dublin Bus works with the Department of Communications, Climate Action & Environment to model and monitor air quality in Dublin city. Dublin Bus provides technical data and industry expertise to assist with the formation of these models. The Bus Connects project will help reduce nitrogen oxide (NOx) levels by increasing the average speed of public transport across the city, making the bus network more efficient, reduce idling time and minimising stop/start conditions which lead to increased emissions.



### CO2 per passenger kilometer vs 2009

The average passenger kilometer on a Dublin Bus service in 2019 used 37% less CO2 than in 2009.



Transition to low emission vehicles	Infrastructure upgrades	Energy efficiency and climate performance
<ul style="list-style-type: none"> <li>• Roll out of a ‘fleet renewal scheme’ project, with the lowest emission diesel buses available.</li> <li>• Implementation of a trial of nine diesel hybrid buses.</li> <li>• Investigation into feasibility of a trial of fully electric buses to serve a full route around Dublin.</li> <li>• Tender of 600 plug in hybrids with one kilometre zero tail pipe emissions capability.</li> <li>• Electrification of the support fleet consisting of small vans and cars</li> </ul>	<ul style="list-style-type: none"> <li>• Undertake feasibility studies to investigate the potential to provide multi-purpose sites (residential, office, retail and operational), at existing locations, while retaining the operational capability of these locations.</li> <li>• Cost-benefit analyses to determine the most suitable location to develop additional depot facilities that could cater for the increased special requirements and that would be suitable for a multi-purpose site are also being conducted.</li> </ul>	<ul style="list-style-type: none"> <li>• Adoption of Carbon Pledge, committing to reducing their direct carbon footprint by 50% by 2030.</li> <li>• Delivery of the Dublin Bus Connects investment programme and the network re-design.</li> <li>• Implementation of energy management measures to achieve ISO 500001 and requirements for an effective environmental management system (EMS) for ISO14001 certification in early 2020.</li> <li>• Further implementation of eco-driving training, which has yielded a 13% reduction in fuel use since 2008, equating to 4.2 million litres of diesel.</li> <li>• Effective route optimisation has been implemented for operational efficiency.</li> <li>• Reinstatement of energy/green teams focused on 2030 targets.</li> </ul>

## 6.7 IARNRÓD ÉIREANN - EMISSIONS MANAGEMENT AND SUSTAINABLE NETWORK EXPANSION

Iarnród Éireann carried its highest number of passengers ever in 2019 with over 50 million passenger journeys. Alongside growing passenger numbers Iarnród Éireann have made significant progress in terms of energy efficiency achieving their 2020 climate targets in 2016, well ahead of target.

The decarbonisation programme has now entered an ambitious phase, as the fleet undergoes expansion and modernisation, under Project Ireland 2040. Iarnród Éireann has made significant progress in reducing GHG emissions and has achieved over 40% improvement in energy efficiency per passenger rail km since 2005, well ahead of the EU target of 20% improvement in energy efficiency by 2020. The total CO2 emissions fell to 148,500 tonnes for 2019. This equates to an annual avoidance of 81.5 tonnes on the 2006 baseline (35%).

These reductions have been achieved with the implementation of a range of operational efficiencies; timetable optimisation; driver training; telematics and

- The use of auto-shutdown on a major portion of the diesel multiple unit (DMU) fleet.
- Renewal of infrastructure which has permitted timetable optimisation and eliminated temporary speed restrictions.
- Implementation of modified fleet strategy to match train size to customer demand.
- Telematics for older rolling stock providing online data of distance travelled and fuel consumption.
- Use of Envirox fuel additive to reduce fuel consumption and delivering energy efficiency (and reduced emissions), with savings of approximately 6%. Nationwide use of Envirox commenced in 2019.
- Further gathering of data for energy optimisation through the use of a remote transport telematics.



CO2 per passenger km vs 2006

The average passenger kilometer on an Iarnród Éireann service used 50% less CO2 in 2019 than in 2006.



## Planned Emission Reduction and Capacity Growth

Iarnród Éireann have achieved an annual avoidance of 81.5 tonnes of CO<sub>2</sub> (35%) since a baseline in 2006. A number of fuel efficiency programmes are currently in progress which will enable further emission reductions and low emission capacity growth. Listed below, these include:

- The DART expansion programme, involving the electrification of the Dublin commuter network, expanding 100Km of electrified track to 300Km. By 2027 increased peak hourly passenger capacity will grow from 26,000 to 70,000 by 2035, resulting in 80% of journeys on the rail network being electrified.
- Phased roll out of wider electrification and hybrid operations (InterCity and Regional).
- Intercity rail car (DMU Gearbox) upgrade. A prototype is under trial and the upgrade allows replacement of existing fluid coupling gearbox with a more efficient dual lock-up clutch. This enables conversion to a reduced emission hybrid vehicle in the future.
- Hybrid drive for Inter City Railcar fleet where the Hybrid pack will collect regenerative energy and store electric energy to permit electric-only running within urban areas and will lead to reductions in fuel and emissions. Funding of €15 million from the Climate Action Fund has been announced and a successful outcome from the trial and further state investment, is required for roll-out across the entire fleet.
- Six new diesel engine powerpacks are to be trialled (delivery estimated Dec 2019, testing and commissioning 2021).
- The use of Ad Blue fuel additive to eliminate NO<sub>x</sub> emissions and ensure cleaner engines.
- Three hybrid powerpacks are expected to be delivered in Oct 2020. Commissioning and testing will require 14 months. The main benefit of the powerpacks is to reduce fuel consumption and reduce emissions to the environment, particularly in enclosed areas such as stations and servicing depots and in areas of dense population (lower speed will use battery versus diesel).
- Use of a remote monitoring and reporting system on locomotives and commuter DMU fleet to enable accurate measurement of distance travelled and real time systems that enables transition of train exams from time based to distance based, minimising fleet being taken out of service and economies. Introduction of 20 Electric/Hybrid Cars to the road service fleet in 2020.

### Hybrid Railcar Hybrid Project

The investment in the Intercity Railcar Hybrid project is estimated to deliver 25% improved energy efficiency across a current fleet fuel volume of 22 million litres, in addition to reduced emissions from the engine upgrade. The project will be phased in over 8-10 years and will deliver a carbon avoidance of 18,000 tonnes per annum, in addition to reduced volumes of NOx, particulate matter and noise emissions.

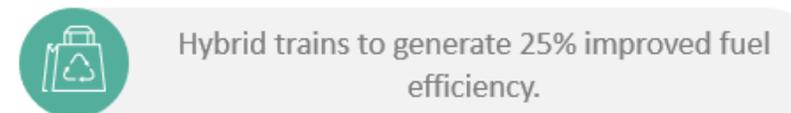
### Building Energy Performance

Iarnród Éireann is committed to effective and efficient energy management and is certified to the international standards for energy management (ISO 50001).

The primary strategy to manage building performance for energy efficiency and environmental improvements will include a range of initiatives such as:

- Buildings and facilities regulation compliance and life cycle planning.
- Feasibility study to design an energy efficient buildings plan including NZEB or highest achievable standard for protected structures in discrete locations.
- Energy and environmental innovations such as green roof; blue roof (water harvesting) and energy production via solar PV are envisaged for energy and environmental building upgrades throughout the CIÉ Group.

### Highlights



## 7 PROTECTING OUR ENVIRONMENT



### 7.1 ENHANCING BIODIVERSITY AND NATURAL CAPITAL

Increasing biodiversity and developing natural capital is a priority of the CIÉ Group sustainability strategy. We aim to develop a symbiotic relationship with the surrounding environment as much as is possible and have the ambition to actively contribute to biodiverse ecosystems where possible. Furthermore, the interface of rail and natural capital includes over 120 protected wildlife areas which we endeavour to preserve.

Iarnród Éireann are engaged in a number of partnerships and initiatives that aim to enhance biodiversity and minimise impact on the natural environment. As a group, we are committed to further developing the work done on the frontline rail network as well as taking the learnings and applying it across our complete transport network.



A close partnership with the national biodiversity data centre has led to 10 Stations adopting Biodiversity / Pollinator Plans in 2019/2020. The CIÉ Group plans to build on this fruitful relationship by fully implementing the “Pollinator Friendly management of Transport Corridors” guidelines across the CIÉ Group transport network. The document outlines 21 actions which address responsible and sustainable use of pesticides to creating pollinator friendly areas in train/bus stations and carparks.

Furthermore, through granting Birdwatch Ireland access across the Dublin-Wexford railway line every summer to their “Little Tern Protection Scheme” at Kilcoole, Co. Wicklow, the CIÉ Group help to enable essential monitoring of the birds during their nesting season between May and August every year. Little Terns are classified with status “amber” in terms of conservation.

Moving forward, CIÉ Group are committed to protecting our countries natural environment, enhancing biodiversity and investing in natural capital through:

- Further developing our relationship with the national biodiversity data centre to extend the introduction of Biodiversity / Pollinator Plans to bus and train stations across the CIÉ Group network.
- Facilitating, the consistent and regular updating of ecological data sets along Iarnród Éireann rail-lines in order to inform on/highlight protected habitats and species during the planning phase of development.
- Working with the Department of Agriculture, Food and the Marine (DAFM) as well as the National Parks and Wildlife Service (NPWS) to identify CIÉ lands which are suitable for native planting (with a goal of 4.15 hectares of native woodland planted by 2021).

(Which equates to 25 tonnes of carbon sequestrated a year over the next hundred years).

- Implement additional planting schemes, in consultation with the Department of Agriculture, Food and Marine and with the National Parks and Wildlife Services, on CIÉ Group land by 2030, with a view to reporting coverage and carbon sequestering statistics for each native planting project.
- Building on the large proportion of operations that have ISO14001 environmental management certification by achieving group-wide certification.

## 7.2 ENSURING CLIMATE RESILIENT INFRASTRUCTURE

As stated in the Department of Transport, Tourism and Sport's 'Climate Change Sectoral Adaptation Plan' 'Ireland's climate is undergoing unequivocal change; scientific observations show a rise in sea level on Irish coasts, increases in annual average temperatures, changes in precipitation patterns and increasing incidences of extreme weather events'. In a public transport context, these changes (in particular, extreme weather events) can disrupt operations damage infrastructure and potentially lead to unsafe travel conditions. Consequently, integrating climate resiliency into our operations is an important part of the CIÉ Group strategy for sustainability.

All of CIÉ Group operations are likely to be subject to the adverse impact of climate change, however, some of our infrastructure will be particularly at risk. The coastal routes of the Irish Rail network, due to their close proximity to the sea are a prime example of infrastructure that will need to be safeguarded from the adverse effects of climate change.

Routes well known for their picturesque sea views such as the DART's coastal track along Dublin Bay and the Dublin to Rosslare line that includes the eye-catching passage through the waterfront in Wexford town will all need to be adapted to protect against rising sea levels and associated extreme weather events.



**CIÉ Group is prioritising the protection of our infrastructure from climate related conditions and to ensuring a consistent, safe service in the face of climate disruption. The preparatory work for an integrated plan for climate adaptation is underway, with action being taken to protect the 60km of coastal network during 2020. These include:**

- The adoption of the actions outlined in the Department of Transport, Tourism and Sport's 'Climate Change Sectoral Adaptation Plan'.
- The publication and communication of Extreme Weather protocols.
- Continued participation in the National Emergency Co-ordination Group.
- The use of risk models and vulnerability assessment tools to assess climate risk effectively.
- Collaboration with stakeholders such as local county councils on adaptation feasibility studies



In the longer-term, this work will culminate in the publication of a CIÉ Group Climate Adaptation Plan that will guide the implementation of a programme of resilience strategies on our most vulnerable assets to climate related damage.



## 8 RESPONSIBLE CONSUMPTION AND PRODUCTION



The CIÉ Group views responsible production and consumption as a core responsibility and endeavours to embody the principles of the circular economy where possible and prioritise the mitigation of air, water and soil pollutants of waste generated.

### 8.1 WASTE MANAGEMENT

At the CIÉ Group, our strategy for waste management involves:

1. Minimising waste generated, specifically hazardous materials, across our value chain.
2. Applying the principles of the circular economy by creatively looking for further potential uses of waste that is generated.
3. Ensuring waste segregation to maximise the proportion of waste recycled externally by contracted licensed facilities, where it is not possible to recycle waste material internally or through local partnerships.
4. Recover energy from remaining waste with our waste management partners. 46% of our waste is recovered through either Solid Recovered Fuel (SRF) or Refuse Derived Fuel (RDF) processing.
  - Solid Recovered Fuel is a system through which fuel is created by shredding and dehydrating solid waste
  - Refuse Derived Fuel processing is a type of fuel produced from various waste sources, such as industrial wastes, commercial wastes and municipal solid wastes which is used to generate electricity.

#### Waste Statistics

- Recycling rate improvement from 75% in 2016, to 80% in 2017 in Dublin Bus.
- Irish Rail improved recycling rate of 73% in 2019.



In 2020, partnering with the EPA, as part of the National Waste Prevention Programme, we seek to refine our strategy for waste prevention in support of the circular economy, across all operations. Drawing on the EPA's expertise in value chain analysis and behavioural change, a waste prevention plan will be rolled out for the CIÉ Group to influence the waste related behaviour of our 10,500 employees and millions of customers each year.



The CIÉ Group seeks to redevelop and ratify the I.T. Waste Management strategy which considers initiatives to reduce GHG emissions, reduce the overall environmental pollution and energy consumption and encourage the development of green technologies. With the assistance of the EPA, the CIÉ Group can implement best practice standards to achieve a sustainable I.T. Waste Management strategy along with enhancing behavioural change i.e. powering down of unused I.T. assets, to refurbishing end of life assets for charities, community groups or schools.

Through consultation with the EPA and through learnings from the Carbon Disclosure Programme, CIÉ Group look to establish a process and build in criteria, to monitor and review Scope 3 GHG emissions by 2023, along with introducing tools to enhance future reporting and governance.

**The CIÉ Group is committed to further developing our waste prevention and waste management practices through:**

- Building on the large proportion of operations that have achieved ISO14001 environmental management standards certification, by working to achieve a group-wide certification.
- Employing targeted waste prevention strategies as recommended by the EPA and achieving a group-wide reduction in waste of 25%.
- Implementing targeted waste segregation strategies to improve waste recycling figures further (target CIÉ group figure of 70%).
- In line with the EPA guidance, initiate a programme of work for 'Prevent Food Waste' and 'Stop Single-Use Plastics' across the CIÉ Group value chain.



### **CIÉ Green Teams Initiative**

To promote sustainable action in the workplace, the CIÉ Group will be establishing 'Green Teams' who will participate in the Green Team National Programme which is delivered by Waterford Institute of Technology in partnership with Consulteco Environment Consultants and supported by the EPA. This programme is presented through a number of modules ranging from “easy wins” to more technical concepts covering topics such as energy use, recycling, sustainability, water use and transport. The programme will be specifically tailored for the CIÉ Group and will include dedicated workshops, online training and support and culminate in a supervised sustainability project for our workplace. Participants will receive recognition through certification from Waterford I.T. [www.greenteams.ie](http://www.greenteams.ie)

## 8.2 CREATING BEHAVIOURAL CHANGE

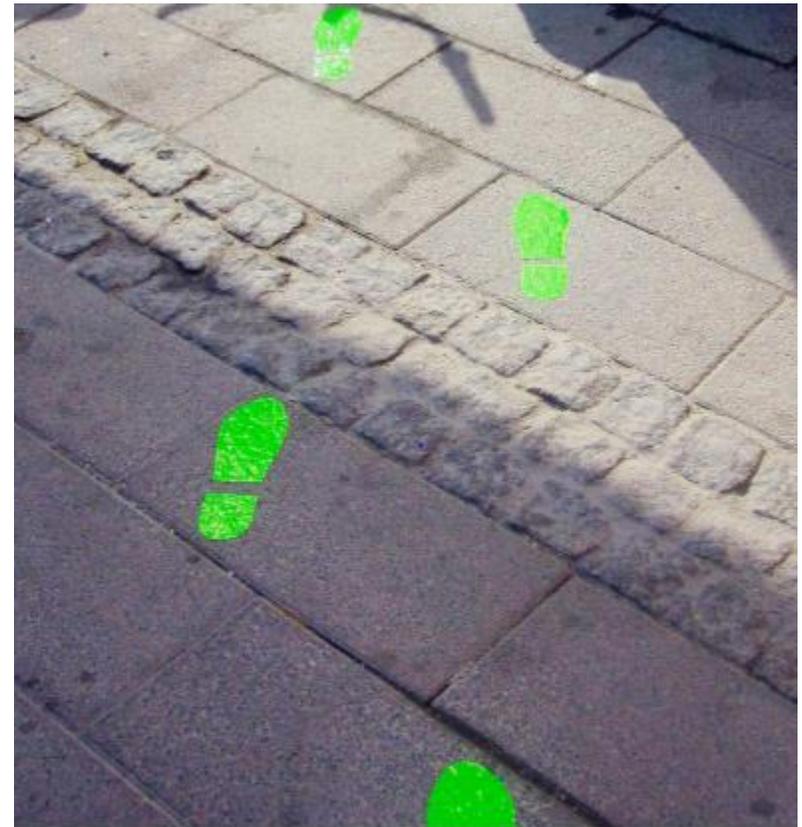
### Circular Economy and Waste Prevention

Our behavioural economics wing in partnership with the EPA are in the process of developing a strategy for internal and consumer facing waste-related behavioural change.

The feasibility of tailoring the waste related behavioural change plan that was applied at the University College Dublin campus is currently being analysed due to comparable setups in terms of business units spread out (i.e. multiple campus' vs depots across Dublin / Ireland, nationwide stations etc).

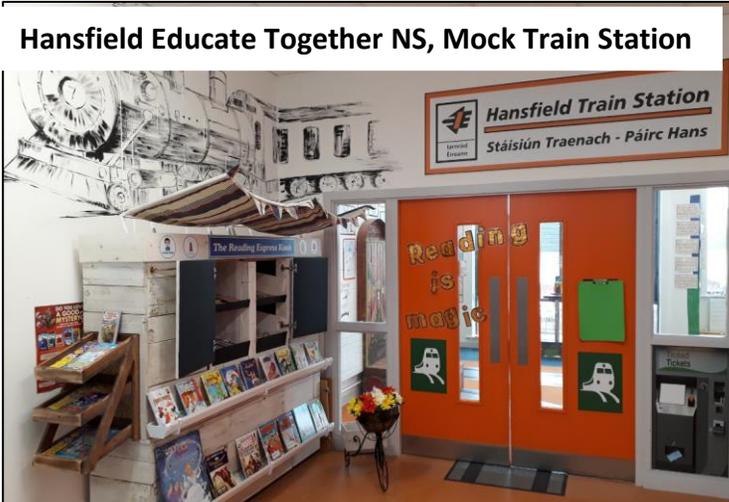
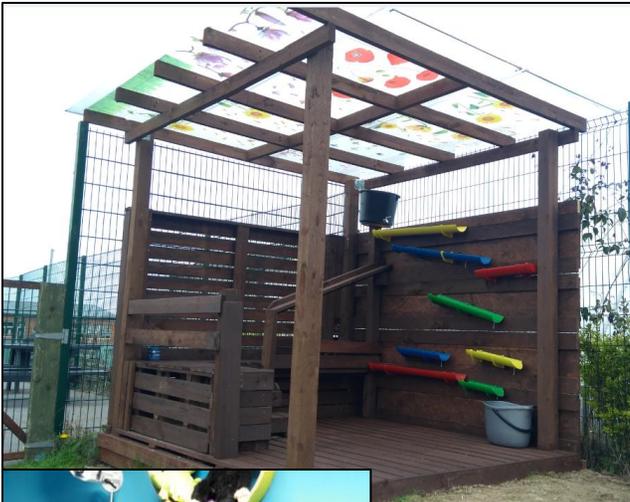
The strategy is aiming to facilitate significant change in the practice and behaviours around waste management of our 10,000 employees and millions of customers each year. It is hoped that our behavioural change initiative will pave the way for other semi-states to adopt similar programmes.

As part of our energy efficiency strategy, the CIÉ Group has **partnered with the SEAI Behavioural Economics Unit** to apply behavioural science to maximise the returns from eco-driving schemes already in place. We will be conducting a large-scale trial to test the efficacy of various forms of behaviourally informed driver eco-feedback using onboard telematics systems.



### 8.3 WOOD UPCYCLING – CASE STUDY

**Irish Rail** - Partner with local groups such as the SMILE Resource Centre that re-purpose packaging waste and other clean waste into construction projects for schools and local organisations. For example, pristine wooden crates that would otherwise be disposed of are used to create sensory projects for Autism Centres and libraries for public schools. Irish Rail has set a target to provide materials to at least 2 Upcycling Projects in 2020.



## 8.4 WATER HARVESTING

In 2020, a pilot rainwater harvesting system is being developed at the Summerhill Bus Garage in the hope that this model can be rolled out at scale.

Dublin Bus washes approximately 900 buses per night, using thousands of litres of water.

The CIÉ Group is planning to deliver water harvesting schemes at Bus Stations where it is feasible, so that the thousands of litres used to wash buses per night, are sustainably sourced from rainwater.

Once buses have been washed, Dublin bus report and sample the water released into the waterways on a regular basis. Through ongoing training and awareness campaigns, we aim to improve the cleanliness of any excess water released into waterways.

Bus Éireann have also planned to introduce water harvesting initiatives, with two pilot studies hoped to be conducted in the near future at regional garages.



## 8.5 CONSUMPTION AND GREEN PROCUREMENT

Within CIÉ, consumption is kept to a minimum with practices such as the use of intermediate bulk packaging for bulk products. We are working with suppliers to reduce the amount of packaging and single-use plastic materials involved in consumption.

There is also a desire to drive a key change in mindset around all aspects of the procurement process and to become a leader in green procurement practice. We aim to develop procurement policy that delivers tangible results in terms of sustainability across our supply chain. We will also be drawing on the EPA's expertise around value chain analysis and the learnings from the Carbon Disclosure Programme to develop our knowledge and practice in this area.



### **In 2020, we will review criteria for procurement and will develop a green procurement policy by:**

- Developing policy that promotes the procurement of sustainable products that favour biodegradable or recyclable materials over single use, non-recyclable materials.
- Reviewing our 'request for proposal' policy to include specifications relating to scoring on sustainability.
- Investigating methods of continuously improving our policy around the favouring of greener options during the tender process.
- Formulating a workshop in collaboration with the EPA to review group policy and develop green procurement practices further.

## 9 TRANSPORT-ORIENTED DEVELOPMENT

The CIÉ Group is one of the largest landowners in Ireland. We are committed to developing and integrating transport orientated development into CIÉ land developments, to achieve compact growth and sustainable mobility. Transport orientated development (TOD) is an approach to urban development which provides residential, business and leisure space within walking distance of public transport and has been used successfully internationally to enhance development around major transport hubs.



*“We consider our approach to TOD for our property development as a cornerstone of our sustainability strategy”*

With unique property assets and hubs in cities and towns across Ireland, CIÉ Group Property has the potential to optimise the provision of housing, employment, public services and leisure space, in close proximity to frequent, high-quality transport services to support transport-orientated development. This will be achieved in partnership with the Land Development Agency and aligned with the clear policy and strategic goals of Project Ireland 2040, strengthening our cities and our regions, and supporting the development of an inclusive economy.

Our priorities for promoting transport orientated development on CIÉ lands include the development of:

**Heuston Station Dublin** - Multiple interfacing public transport modes present an unrivalled opportunity for an exemplar of Transport-Orientated Development at Heuston Station. Any development of CIÉ’s lands will prioritise the provision of pedestrian and cycling linkages and facilities on the site. The intention is to launch CIÉ’s plans for the site in 2020 with development rolling out as the operational release of the lands and market conditions dictate. The area of potential development lands outside of the existing rail tracks totals over 7 hectares.

**Limerick Colbert Station** - (c. 53 acres) is at the heart of Limerick City’s ambition to pursue urban regeneration. The development forms part of the Limerick 2030 Economic and Spatial Plan and will be integrated into the new station plaza and car park, which opened 2017 in collaboration between the CIÉ Group, the NTA and Limerick City & County Council (LCCC). Phase 2 of the development will see Bus Éireann passenger station being reconsidered for funding by the NTA and Urban Regeneration and Development Fund. Planning permission has been extended until end 2024. The Land Development Agency (LDA) is commencing a Master planning exercise for a wider area c.120 acres, involving three main landowners - CIÉ, HSE and LCCC. TOD is one of the shared principles to be adopted in the Masterplan with the LDA’s strategy is to promote compact development and regeneration of Ireland’s key urban areas suitable for housing, jobs, amenities and services.

**Tara Street Dublin** – Planning permission has been granted for a high-rise hotel and office building on CIÉ’s 0.135-hectare site adjacent to Tara Street Dart Station. The development will provide enhanced pedestrian access to and from the station, with a new link directly onto Tara Street with a covered colonnaded walkway.



**The Connolly Strategic Housing Development** – Planning permission has been granted for the residential components (741 units) of a substantial development on CIÉ’s lands of 2.7 hectares at Connolly Station, Dublin. The development will provide enhanced connectivity to the station and includes substantial areas of new public realm. The permitted development includes over 1400 cycle spaces over half of which are available for the use of visitors.



**Kent Station Cork** – Developing a substantial scheme of office, residential, hotel and retail development is under construction on CIÉ’s lands of 2.48 hectares adjacent to the major transport hub of Kent Station. The development will include new areas of public realm (4 no. public spaces with an area of 5,080m<sup>2</sup>) which will provide a more direct pedestrian access route from the new station entrance to Horgan’s Quay and onwards towards the City Centre. The new station entrance also has direct cycle lane links which integrate with recently installed cycle routes on the surrounding public street networks.



**Ceannt Station Galway** – Planning permission has been granted for a substantial mixed-use development (predominantly Retail and residential) on CIÉ’s lands of 3.3 hectares directly adjacent to Ceannt Station Galway. The development will integrate the substantial city centre area of land into the existing urban fabric and provide enhanced connectivity. The development proposals are to create a new destination within the city core that serves as a sustainable mixed-use quarter linked to the transportation hub and provides for the future plans for enhancement of the hub. The proposals include the creation of substantial new areas of public realm and residential amenity areas (70%+ by site area) and over 1,150 cycle spaces, 50% of which will be publicly accessible.



## 9.1 URBAN BUS DEPOTS AND TRANSPORT-ORIENTATED DEVELOPMENT

Current levels of passenger demand; projected growth in demand stemming from population growth; route changes related to the BusConnects programme; and increased special requirements for charging points for an increased electric bus fleet all signify that significant expansion, development and re-location of Dublin Bus and Bus Éireann depot facilities is required.

Given the demand for space for development in Dublin city centre, Dublin Bus and Bus Éireann recognises the need to investigate innovative solutions involving operationally required lands. As a result, the potential to transform bus depots into genuine living components of the city is being investigated. Renewing and transforming bus depots into functional and social multi-purpose sites has the potential to harness the many benefits of urbanisation. On top of their function as a bus depot, such sites could provide the state and private developers with space to develop social and private housing, along with other public facilities (schools, childcare and other commercial facilities). Not only would such developments aid in the necessary supply of these facilities but they would also be in close proximity to public transport services, in line with the principles of transport-orientated development.



In 2020, Dublin Bus and Bus Éireann are conducting:

- Feasibility studies to investigate the potential to provide multi-purpose sites (residential, office, retail and operational) at existing locations while retaining the operational capability.
- Cost-benefit analyses to determine the most suitable location to develop additional depot facilities that could cater for the increased special requirements and that would be suitable for a multi-purpose site are also being conducted.

## 10 PRIORITISING INCLUSIVITY, HEALTH AND WELLBEING IN OUR WORKFORCE



In 2020, we are in the process of building on the substantial work being done in the area of Health and Wellbeing within the CIÉ group by delivering a formalised workplace health strategy in each of the operating companies. This process has begun with workplace employee wellness audits being conducted beginning with Iarnród Éireann. A series of these audits will be conducted across the group using tools such as Work Positive. An action implementation plan will then be designed to carry out the recommendations from the audit (this process has already begun within Iarnród Éireann). As well as the specific actions identified in the individual audits, the strategies will look to build capacity of expertise on wellness within each workforce, by building on the number of current staff currently completing Workplace Wellness Postgraduate certificates. The CIÉ Group will also be aiming to achieve group wide IBEC ‘Keep Well Mark’ accreditation from IBEC such as has already been achieved within the Holding Company Keep.

Further health and wellness targets include:

- Deliver a Wellbeing Leader Program in each organisation and further develop work wellness teams supported by a trained wellness facilitator.
- Develop a wellbeing department under the Occupational Health Department, moving towards a more proactive wellbeing model.
- Expand the Health/Life coaching services within the Occupational Health Department and mobile proactive health screening service.
- Build on the number of trained Mental Health First Aiders.
- Launch an IT well hub in each operating company to develop the concept of well TV and podcasts on wellness.
- Expand delivery of monthly employee Masterclass Wellness Workshops.
- Continue the annual/semi-annual in-house wellness conferences and expand to include all of the operating companies.
- Develop an e-magazine – Healthy Times (Iarnród Éireann wellness articles in rail brief and rail safe and IE connect, Dublin Buzz).
- Deliver EAP services group-wide.
- Extend collaboration with Irish Heart Foundation CPR staff training programme to implement training across group operations.
- Aim to achieve the Healthy Heart Canteen Award, building on Dublin Bus winning this in the past.



## 11 EQUAL OPPORTUNITY AND GENDER EQUALITY



Fostering an inclusive culture of equality of opportunity is a priority in for the CIÉ Group. We aim to provide opportunities for female leadership at all levels of decision-making.

At the CIÉ group we are endeavouring to align our culture and working environment with the ambition of **Sustainable Development Goal 5: Achieving gender equality and empowerment for all women and girls.**

We believe that we can do so most effectively through further integrating Action 5.5 of the Sustainable development goals into our operations:

*Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life.*

We are proud that we have achieved close to parity in terms of gender representation across the boards of our companies with Dublin Bus having 44% female board members, Iarnród Éireann 56% and Bus Éireann 38%. Our operating companies have been proactively implementing programmes to promote gender equality and female participation. This year has seen the launch of female driver recruitment programmes in both Dublin Bus and Bus Éireann. As female drivers only account for 4% of the driver population, Dublin Bus held a series of Female Driver Recruitment open days from 24<sup>th</sup> August 2019, with the aim of doubling the number of female bus drivers. In 2020, the success of the female recruitment campaign is hoped to be built upon and in the long-term female driver are hoped to increase from 4% to 8% of the Dublin Bus driver population. In parallel, Bus Éireann hopes to increase female driver numbers from 4% to 15% by 2030 through continuing their female driver and craftworkers recruitment campaign initiated in 2019.

Iarnród Éireann, which is a large recruiter of (STEM) 'science, technology, engineering and mathematics' graduates has also been actively pursuing recruitment of female graduates. Iarnród Éireann have also committed to aim to achieve the objectives outlined in the European Economic and Social Committee's 'Declaration on Equal Opportunities for Women and Men in the Transport Sector'. The Declaration sets out a plan that includes collecting data to provide a sound basis for planning policies and measures, monitoring progress and assessing the impact of targeted actions. Surveys are being conducted in 2020. Iarnród Éireann also offer an 'Inspire - Women in Leadership Course' to staff yearly to promote the advancement of women in leadership roles.

## 12 HERITAGE

At the CIÉ Group we value our history and share our heritage by investing and promoting protection and access to our historic assets.

### Heuston Archive Project

The CIÉ Group have an extensive record archive located mainly at Heuston Station. Contained within the archive amongst other things are the minute books of the Board meetings of railway and tramway companies from the mid-19<sup>th</sup> century up to the formation of CIÉ in 1945 and continuing up to the present day. In addition, records of CIÉ’s property archive including, property deeds, agreements, leases etc., are also held along with an extensive collection of railway ledger books. The documents in the archive are not entirely catalogued and are in various states of repair.



The CIÉ Group are currently undertaking an archive scoping exercise and has retained an archival company which has the necessary experience to assist us in assessing the archive with a view to: creating an accurate catalogue; assessing the short, medium- and long-term conservation requirements; exploring the feasibility of digitising the archive; allowing the public access to the records. We look forward to receiving recommendations in this regard.

## Farranfore Railway Park Project

CIÉ Group collaborated with the Farranfore Development Association to facilitate the construction of a community park and associated car parking at Farranfore Railway Park. Farranfore Railway Park, also known as Páirc Iarnród an Fhearainn Fhobhair, is located at the site of the old Railway water tower and the area is infused in Irish history dating back to the emigration in the 1940's and 1950's. The development of the Railway Park drives the CIÉ Group ambition to call attention to the rich transport heritage across the country, providing a common area for all members of the community.

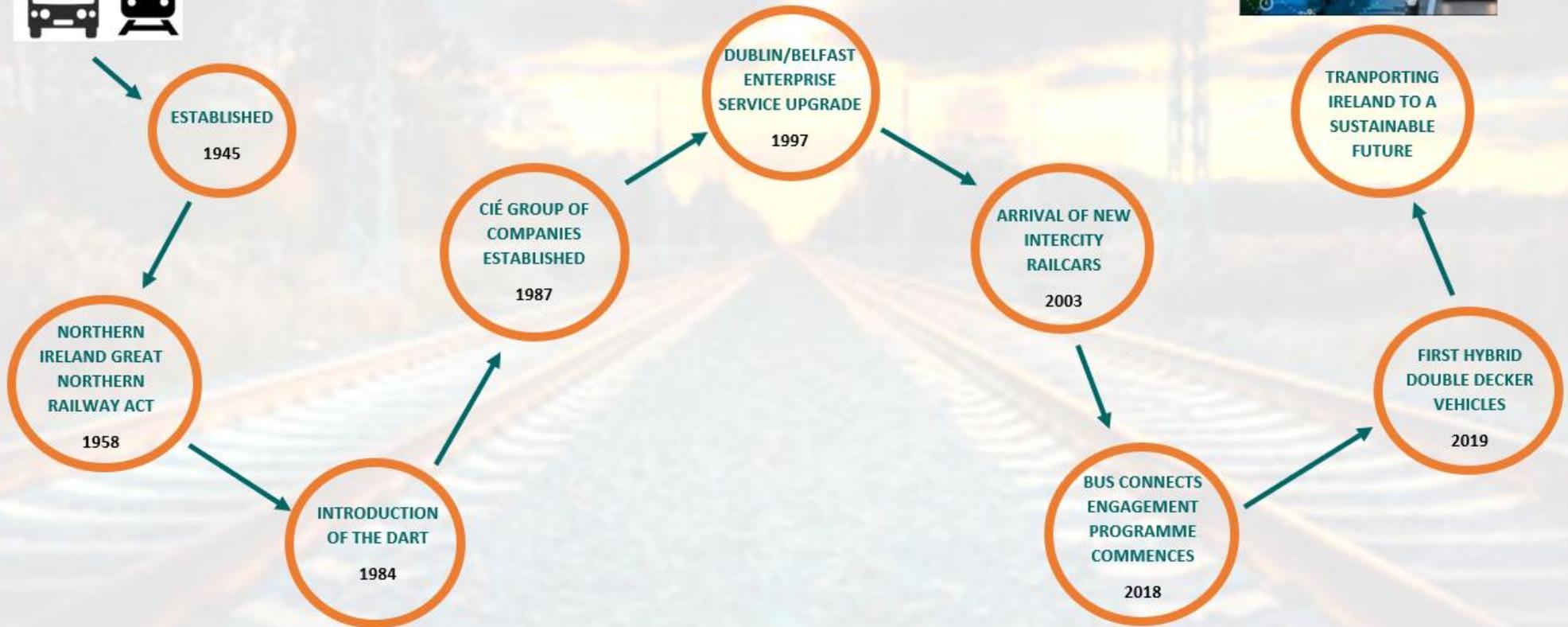


## Ballyglunin Station House

The new community initiative of reforming the Old Station House in Ballyglunin, will ensure sustainability is at the core of all its activities. The pipeline project is determined to achieve all works in an environmentally and archaeologically sensitive manner. The reformation of the Station House will provide a heritage site for communities and tourists to revisit the history surrounding Ballyglunin Station House, which is famously known for the filming location of the movie 'The Quiet Man'.

# TIMELINE TO 2020

# 75 YEARS CONNECTING COMMUNITIES ACROSS IRELAND



## 13 COMMUNITY ENGAGEMENT



Supporting the development and enhancement of communities and cities is at the essence of the purpose and vision of the CIÉ Group.

### Dublin Bus Community Spirit Awards

Since 2004, Dublin Bus have been supporting grassroots voluntary and community groups across the Greater Dublin Area (GDA) through the Community Spirit Awards.

The Community Spirit Awards help to support the development of new projects, grow services and help raise community spirit in the local community. The programme was initiated to recognise and support the invaluable work undertaken each day by local groups located within the Dublin Bus network.

To date almost 2,000 groups have received funding from Dublin Bus which has helped many worthwhile causes in communities across the GDA. Applications for next year's programme will be available in May 2020.



### North-East Inner-City (NEIC) TY Work Experience



CIÉ works to promote access to higher education and have actively engaged in a work experience programme that benefits transition year students from the local community. Working with the North East Inner City (NEIC), this programme is a Government endorsed social regeneration initiative with the goal of effecting lasting, positive change in the area.



## Social and Community Projects

We value our partnership with communities and seek to build relations with both local and inner-city communities across the country. We have a number of initiatives which facilitate access and use of CIÉ Group property for community purposes.

Location	Property	Use	Occupier
Ballina	Goods Store	Storage and Office	Ballina Festival Committee
Ballyglunin, Co. Galway	Station House Building	Community	Ballyglunin Community Development Co. Ltd.
Birdhill Railway Station, Co. Tipperary	Plot	Rose Garden	Birdhill Tidy Towns
Carrick On Suir, Co. Waterford	Goods Store	Diesel Loco Restoration	Irish Traction Group
Clonmel Station	Station Building	Veterans Association	Irish United Veteran Association (IUNVA)
Clonmel Station	Station Building	Coffee Shop	Irish United Veteran Association (IUNVA)
Cobh	Platform Buildings	Tourism Hospitality	Cobh Maritime Development Co. Ltd.
Donegal Town	Station Building	Railway Museum	Co. Donegal Restoration Section
Dromod, Co. Leitrim	Goods Store	Railway Preservation	Cavan and Leitrim Railway Company
Farranfore	Plot	Public park/Amenity	Farranfore Development Association
Heuston Station	Building	Railway Records Society	Railway Records Society
Inchicore	Buildings	Sports and Social Club	Inchicore Sports & Social Community
Inchicore	Land and Buildings	Sports Field	Inchicore Athletic Union
Inchicore	Sidings	Storage of Rolling Stock	Railway Preservation Society (RPSI)
Kingscourt Station, Co. Meath	Station Building	Community Uses	Kingscourt Community Development Association
Knocklong, Co. Limerick	Plot & Station Building	Museum/Memorial Park/Playground	Limerick County Council/Knocklong Development Association
Liffey Junction, Dublin (Cabra)	Plot	Community Garden	Cabra for Youth
Rosslare	Building	Sports and Social Club	Rosslare Sports and Social Club
Seapoint DART Station, Dublin	Plot	Canoe Club	Espoir Canoe Club
Seville Place, Dublin 1	Arch	Boxing	Dublin Docklands Boxing Club
Seville Place, Dublin 1	Arch	GAA	St. Josephs O'Connell's GAA Club

Waterford/Kilmeadan Line	Railway Line	Narrow Guagesteam Railway	Waterford and Suir Valley Railway Co.
Wexford Railway Station	Plot	Boat & Tennis Club	Wexford Harbour Boat Club

## 13.1 GREENWAYS - TRANSFORMATION OF ABANDONED RAIL LINES

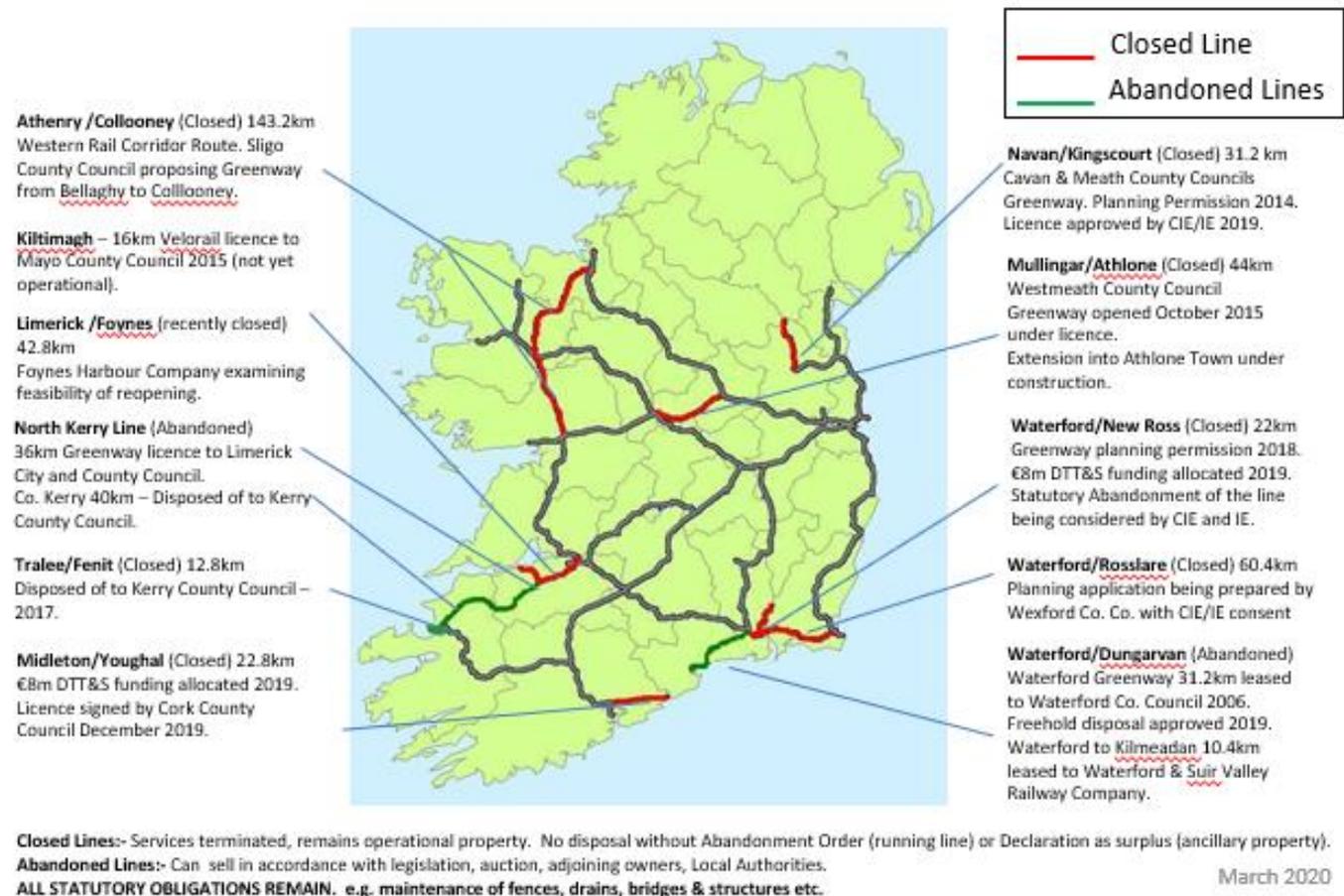
The Greenways are a great example of collaboration between the tourism and transport sectors to develop sustainable multi-use facilities.

The CIÉ Group are proud of the role we play in the development of Greenways in Ireland. We continue to facilitate the development of new Greenway trails on Closed and Abandoned railway lines in accordance with the ‘Strategy for the Future Development of National and Regional Greenways 2018’.

As a group we have been involved in the development of greenways from Waterford to Dungarvan; in North Kerry and from Mullingar to Athlone.

We also plan to facilitate Greenway developments from Waterford to New Ross; Midleton to Youghal and Navan to Kingscourt.

Closed and Abandoned Railway Lines in the Ownership of C.I.É./Iarnród Éireann



## 14 PARTNERSHIPS FOR SUSTAINABILITY



*We consider partnerships a key part of our strategy for sustainability.*

In collaboration with our shareholders the Minister of Transport, Tourism and Sport and the National Transport Authority we are working to provide a level of service that allows the public to make low carbon, sustainable transport decisions and ultimately to enable the modal shift that will be a key component of our country reaching its national targets.

Being the largest public transport provider in Ireland, we recognise our unique position to addressing the national challenges and making a positive contribution. With this in mind, we endeavour to collaborate with stakeholders and support solution orientated action.

Our sustainability strategy will involve key partnerships with:

- The EPA, as part of the National Waste Prevention Programme, to refine our strategy around waste prevention and further drive the principles of the circular economy across our operations.
- The SEAI Behavioural Economics Unit and the UCD Geary Institute for Public Policy to incorporate behavioural insights into our sustainability strategy.

As well as developing external collaborations, in order to promote sustainable processes within the group we are also exploring the feasibility of achieving **“ISO 44001:2017 Collaborative business relationship management systems”** throughout the CIE Group, with the goal of increasing collaboration and developing a less insular approach to future projects. Furthermore, in the spirit of SDG 17, we are participating in a collaboration within semi-state agencies for stakeholder community engagement through the Centre for Marine and Renewable Energy Ireland (MaREI) and University College Cork (UCC).

Topics explored include:

- Developing a common code of practice for community engagement amongst semi-state bodies;
- The capturing and sharing of learnings and promising practices;
- Common messaging that helps people understand and accept the need for rapid and significant changes;
- Addressing the lack of public trust in public agencies;

- Create climate change and sustainability ambassadors;

Other partners include: The National transport Authority, The Department of Transport, Tourism and Sport, NewEra, the Office of Public Works, An Garda Síochána, The National Biodiversity Data Centre, the Department of Agriculture, Food and the Marine, the National Parks and Wildlife Service, Birdwatch Ireland, Green Teams Ireland, the Sustainable Energy Authority and University College Dublin.

## 15 GLOSSARY

Abbreviation	Meaning
CAP	Consumption-based Accounting and Policy
CDP	Carbon Disclosure Programme
CIÉ	Córas Iompair Éireann
CO <sub>2</sub>	Carbon Dioxide
CPR	Cardiopulmonary resuscitation
DAFM	Department of Agriculture, Food and the Marine
DIT	Dublin Institute of Technology
DPF	Diesel Particulate Filters
DTTAS	Department of Transport, Tourism and Sport
EAP	Employee Assistance Plan
EGR	Exhaust Gas Recirculation
EMS	Environmental Management System
EPA	Environmental Protection Agency
ERI	Environmental Research Institute
ESB	Electricity Supply Board
EV	Electric Vehicle
GAA	Gaelic Athletic Association
GDA	Greater Dublin Area
GHG	Greenhouse Gas
HSA	Health and Safety Authority
LCCC	Limerick City & County Council
LGBT	Lesbian, Gay, Bisexual, Transgender
MaaS	Mobility as a Service
MARel	Marine and Renewable Energy Ireland
MWhr	Megawatt Hour
NEIC	North East Inner City
NO <sub>x</sub>	Nitrous Oxide
NTA	National Transport Authority
NZEB	Nearly Zero Energy Buildings
PM	Particulate Matter
PV	Photo Voltaic
RDF	Refuse Derived Fuel
SCR	Selective Catalyst Reduction
SDG	Sustainable Development Goals
SEAI	Sustainable Development Authority of Ireland

SRF	Solid Recovered Fuel
STEM	Science, Technology, Engineering and Mathematics
TOD	Transport orientated development
UCC	University College Cork
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
NPWS	National Parks and Wildlife Service