BUSINESS IN THE COMMUNITY IRELAND

Business Working Together for a Low Carbon Ireland

Building Climate Resilience in a Post Pandemic World

PwC's 2nd annual report on the Business in the Community Ireland (BITCI) Low Carbon Pledge

PwC June 2020

pwc

Think Beyond

Ministerial Foreword

Richard Bruton

Minister for Communications, Climate Action and Environment

Ireland has pledged to deliver net zero emissions by 2050. Enterprise has a key role to play in the changes we need to make as we pick up the pace and move towards a more sustainable, resilient society. Those businesses that delay will undermine their competitiveness and resilience into the future and those that move first will see the greatest opportunities.

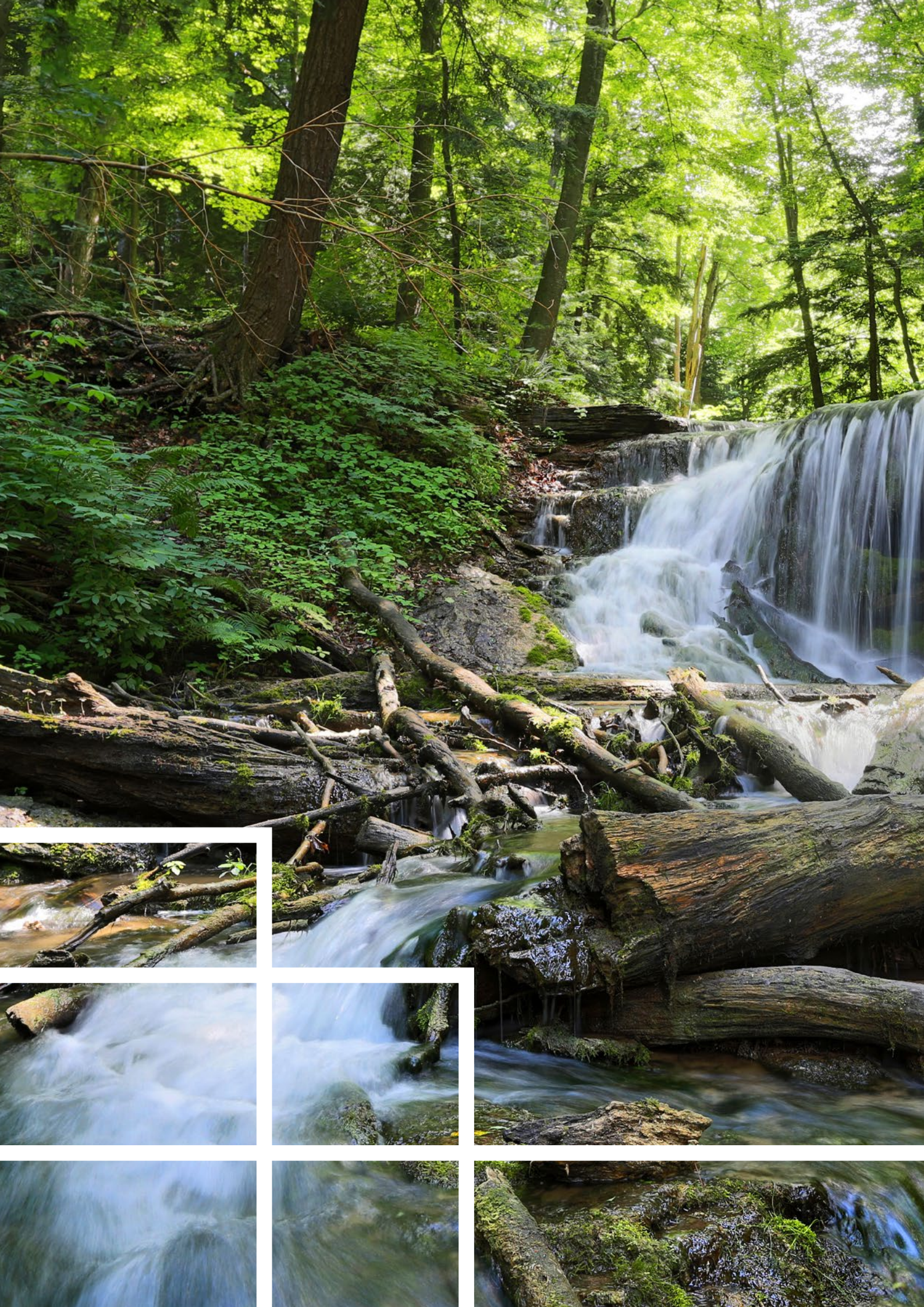
The Climate Action Plan has set out the signposts for each sector. We now know, for the first time, the measures in each area that are needed to meet our targets. We will be pursuing the policies which offer the least burden and greatest opportunity, while recognising the need to support those most exposed and least equipped to meet the challenge.

We now find ourselves in extraordinary circumstances with unprecedented economic and social implications arising from the COVID-19 Pandemic. We will need strong, collective and urgent measures to bring our economy back on track towards sustainable and inclusive growth. It is crucial that as we emerge from the current crisis, that we do not follow emissions trends of recoveries from the past. A lot of businesses have been severely disrupted as a result of the Pandemic. As we rebuild, we need to make the structural changes that will break the link between fossil fuels and economic progress.

Some of the changes that have been accelerated as a result of the crisis, in areas such as remote working, e-Health and online selling, are not only more efficient but are also more sustainable and reduce emissions for a healthier, cleaner way of life. We must embed these changes as part of our recovery. If done right, the recovery from the crisis could provide us with a window of opportunity for modernising and strengthening our policies to ensure a historic boost to competitiveness and the transition to climate neutrality by 2050.

There has been an almost 25% increase in members signing up to the Low Carbon Pledge in 2019. It is the pioneers who lead by example that are pivotal to inspiring and influencing others. Through the decisions you make in conducting your own operations, to the influence you yield on your supply chain and customers, you are key to delivering on the step change that is required. We need to continue to expand the network and encourage more enterprises to commit and innovate. The commitment to improve measurement and reporting practices by BITCI members is a crucial step.

Finally, I would like to acknowledge the considerable effort in preparing this report by Business in the Community Ireland, supported by the Co-Chairs of the Low Carbon sub-group, Mark Foley of EirGrid and Denis O'Sullivan of Gas Networks Ireland.



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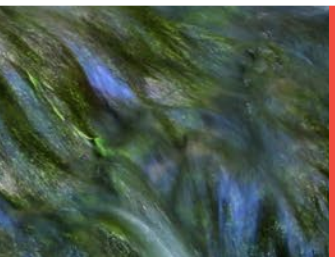

1 Introduction from Business in the Community Ireland

As Business in the Community Ireland's Low Carbon Pledge (the Pledge) marks the milestone of its second report, the business commitment to resolutely address the climate crisis ahead is ever more needed.

The decarbonisation of our economy and society must underpin the recovery period ahead. If we do not embrace the requirement for change created by the COVID-19 pandemic, we risk creating business models that are vulnerable to the long-term impacts of climate change. We risk missing a genuine opportunity to rebuild our economy and society to achieve fair, resilient and inclusive development. We risk letting short-term pressures take precedent over the long-term stability of our economy and society.

The Low Carbon Pledge aims to practically demonstrate meaningful business commitment to reducing carbon emissions and act as a catalyst for wider and more far reaching complementary initiatives and actions. Led by the Low Carbon Sub-group[1] of the Leaders' Group on Sustainability[2], we recognise the barriers and complexities of implementing a fair and just transition to a low carbon economy. The Sub-group aims to support business to overcome these barriers by working collectively to build business capacity and expertise, foster innovation, and critically show leadership by setting an ambitious common standard for business.

During the last 12 months, the Low Carbon Sub-group proposed that the Pledge commitment must move towards enabling business to adopt carbon reduction targets based on science, and ultimately achieve a net-zero economy by 2050.

The Pledge calls on businesses to work towards setting science-based emission reduction targets (i.e. what science says is necessary to limit global warming to 1.5°C) by 2024 at the latest. This is a fundamental challenge to overcome if we want to build resilient and robust businesses.

Over the last 12 months, Business in the Community Ireland (BITCI) together with the Pledge signatories has advanced the ambition of the Pledge through a number of ways:

- The number of Pledge signatories has increased from 47 to 58 companies, with 60% of BITCI members now participating in this collective commitment.
- As part of the data collection process, signatories were invited to submit data on new optional elements, specifically three aspects of scope 3 emissions, including business travel, waste generated and water consumption.
- As part of the wider commitment, signatories were invited to review the business value chain from a scope 3 perspective and start identifying the company's significant scope 3 (indirect) carbon emission sources.
- To support businesses in their commitment to review their value chains, BITCI commissioned a research project to establish a baseline of activity and understanding within signatories, and is working in partnership with We

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1 The Low Carbon Sub-group is chaired by the CEOs of Gas Networks Ireland and EirGrid, with senior representatives from Arup, Dawn Meats, ESB, Musgrave, and Veolia.

2 The Leaders' Group on Sustainability is a CEO-led, multi-sectoral collaboration to progress collective business action on the critical sustainability issues facing Irish business. www.bitc.ie/the-leaders-group/

Mean Business to access solutions and tools for companies to move towards setting targets based on science (due for issue later this year).

- Signatories increased their expertise and advanced peer-to-peer sharing through participating in four business workshops: reviewing topics of green finance; science-based target setting; community and employee engagement; and sustainable transport. The Pledge provides a collaborative platform allowing companies to learn from each other's successes and challenges.

Over the last year, BITCI engaged with national stakeholders from government and the Non-Governmental Organisation (NGO) community, and internationally with We Mean Business and the World Business Council for Sustainable Development, to ensure that the ambition of the Pledge reflects the increased urgency for action.

To further the ambition of the Pledge we ask all businesses to:

- Start the process of setting ambitious science-based emission reduction targets by 2024 at the latest.
- Continue to advance your measurement, reporting and communication on carbon emissions performance, and critically move swiftly to review and start assessing your indirect and supply chain emissions.
- Collaborate with your business peers on the challenge of adopting science-based targets, as this will be the core enabler to allow for change at the speed and scale needed – we face an urgent challenge and pre-competitive collaboration will allow Irish business to move quicker to new low carbon solutions (i.e. technological, process, investment).
- Engage in dialogue on climate change with suppliers, employees, and investors within your sector, and recognise that given the changed expectations of stakeholders, business needs to adapt through re-design of products and services, modifications to supply models, and revisions to investment mechanisms.

Business must set the highest standards in regard to the climate crisis. Best in class is currently to define a clear pathway to decarbonisation through science-based target setting. Business must aim to define the strategic drivers of setting such targets and build the operational capacity to deliver on this. Senior leaders and teams must engage in challenging debate to identify the risks and opportunities from moving to zero-carbon business models, and build the internal skills, capacity and processes to ensure the measurement and reporting systems are fit-for-purpose.

As investors and financial institutions recalibrate business risks and as Environmental, Social and Governance (ESG) ratings increase in volume and influence, it is imperative that each business has a rigorous process to measure, report, and communicate actions across its supply and value chains.

Today we face three threats – the health crisis of the COVID-19 pandemic; the climate crisis as it plays out more slowly but requiring urgent action; and the social inequality dependent on and consequent of the health, economic and climate crisis. It is imperative that we work towards solutions for all three.

If we continue to address these problems in isolation from one another, solutions to one problem could make the others much worse e.g. we bring businesses back from the edge of COVID-induced collapse only to have them flooded out by the next storm surge, or have their supply chains disrupted due to weather events. We have a collective responsibility to design responses to climate change that can positively impact on social equality and economic resilience.

Moving towards zero carbon will enable businesses to adopt strategies, and create products and services based on the true cost and true impact of climate change. Ireland has a huge challenge ahead to transition to a low carbon economy. Our aim is for the Pledge to provide leadership, set a collective ambition and standard, and drive practical action on the climate crisis.

Tomás Sercovich
CEO, Business in the Community Ireland

Mark Foley
CEO, EirGrid

Denis O'Sullivan
MD, Gas Networks Ireland

Organisations participating in this report

A&L Goodbody
ABP Ireland
AIB Group
Aldi
An Post
Arup
Aviva
AXA Insurance
Bank of Ireland Group
Boston Scientific
BT
Cairn Homes
Central Bank
Dawn Meats Group
Deloitte
Diageo Ireland
Dublin Bus
EirGrid plc
Enterprise Rent-a-Car
ESB Group
Fujitsu Ireland
Gas Networks Ireland
Heat Merchants Group
HEINEKEN Ireland
Hovione Ireland
Irish Water
J&J - DePuy
J&J - Vision Care
Janssen Pharmaceutical Sciences UC
KBC Bank Ireland
KPMG
Lidl Ireland
Marks & Spencer (Ireland) Ltd
Matheson
Mercury Eng.
Musgrave Group
Northern Trust Ireland
Ornua
Permanent TSB
PM Group
PwC
Ricoh Ireland Ltd
RTÉ
Sherry Fitzgerald
Sky Ireland
Sodexo Ireland
SSE Ireland
NortonLifeLock
Tesco Ireland
Ulster Bank Ireland DAC
Veolia
Virgin Media Ireland
Verizon
Vodafone Ireland
William Fry

As of May 2020, 58 companies have signed up to the BITCI Low Carbon Pledge. Data from Britvic Ireland, College Proteins Group and Iarnród Éireann (Irish Rail) will feature in next year's report.

2

The Decarbonisation Agenda

2.1 | Introduction from PwC

PwC welcomes the opportunity to once again work with BITCI and produce the 2nd report on the Low Carbon Pledge. The following pages outline the progress of participating signatory companies in reducing their carbon impact through 2019. The analysis highlights some of the key actions that companies are taking in order to drive their emission reduction efforts and get on a pathway towards enhanced sustainability.

2.2 Ireland's Decarbonisation Agenda in Challenging Times

This year's Low Carbon Report takes place against the backdrop of the COVID-19 pandemic, which has caused and will continue to cause significant economic challenges in the near term. The economic challenges presented by COVID-19 will have an impact on Ireland's emissions profile similar to that of the financial crisis, albeit most likely for a shorter period of time. As we return to normal levels of economic activity, the decarbonisation challenge will once again come to the fore.

The Zero Emissions Transition

In the year since the launch of the inaugural Low Carbon Report, significant policy momentum has emerged to support the need for Europe, its economies and businesses to prepare for a zero-emissions climate neutral future. Such momentum will drive the abatement challenges facing EU member states and Irish businesses.

The *European Green Deal*, launched in December 2019, was the first major policy initiative of the new European Commission. It committed the EU to being climate neutral by 2050 (net-zero emissions of greenhouse gases). This requires placing Europe on the appropriate net-zero emissions trajectory now and, accordingly, the Commission intends increasing the EU's 2030 climate ambition and emissions reduction targets. The Green Deal represents a new growth strategy for Europe, aimed at transforming the EU into a sustainable economy with the full decoupling of economic growth and resource use. The proposed European Climate Law aims to convert the 2050 net-zero political commitment into a legally binding commitment.[3] The Climate Law also establishes the necessary steps to achieve the 2050 objective.

By September 2020, the Commission is scheduled to propose a revised 2030 emissions reduction target. It is anticipated that the greenhouse gas emissions target will be increased from 40% to a more ambitious 50% to 55% target. The Commission will then set out how to deliver the additional emissions reductions for 2030 (scheduled for publication in June 2021). This will include possible increases to member states' current emissions targets and extension of the sectoral coverage of the EU emissions trading scheme (ETS).[4] Amendments to renewable energy, energy efficiency and LULUCF[5] policies will also be considered. The LULUCF sector plays an important role in climate mitigation due to its ability to act as a carbon sink where it absorbs and stores carbon. The EU currently permits member states to use a collective 280 million credits[6], reflecting stored carbon within the LULUCF sector, over the 2021 – 2030 period to comply with national emissions targets. The LULUCF flexibility allows Ireland to use up 26.8 million credits towards its emission target.[7] This reflects the carbon absorption from Ireland's forestry programme and grassland and soil management actions.

The EU will develop a 2030 – 2050 EU-wide emissions reduction trajectory to deliver the 2050 net-zero emissions objective. By September 2023, and every five years thereafter, the Commission will assess EU member states' climate policy measures for their compatibility with both the zero emissions objective and the 2030 – 2050 trajectory. Where the Commission finds member state measures are inconsistent with the climate neutrality objective, it may issue recommendations to that member state.

Ireland's long-term climate ambition mirrors that of the EU. The Government has committed to supporting the EU's collective ambition of achieving a net-zero target by 2050, and to pursue a trajectory of emissions reduction nationally which is in line with reaching net-zero in Ireland by the same date. The Government's Climate Action Plan (CAP) identifies that the Government will evaluate in detail the changes which will be necessary in Ireland to achieve this target. The proposed Climate Action Bill, which amends the 2015 Climate Action and Low Carbon Development Plan, looks to establish a 2050 emissions reduction target in law. In the medium-term, Ireland's Climate Action Plan (CAP) provides a roadmap aimed at delivering sectoral emissions reduction targets across the period 2021 - 2030. In developing the CAP, policymakers have sought a pathway to 2030 which would be consistent with a net-zero target by 2050. The CAP identified that residual agriculture emissions will need to be balanced by negative emissions technologies deployed in other sectors combined with increased levels of afforestation.

3 For this to happen the European Climate Law will require approval from both the European and Member State Parliaments

4 The EU Emissions Trading Scheme (ETS) is an EU wide cap-and-trade system. The ETS provides cost-effective incentives to help the main CO_2 intensive sectors (power generation and energy intensive industry (e.g. large combustion plants, oil refineries, plants producing cement, iron, steel)) in each member state comply with annual emissions targets. With the ETS covering approximately 30% (confirm??) of Ireland's GHG, the key challenge for national policy makers lies in delivering emissions reductions in the non-ETS sectors (incl. agriculture, transport, residential, waste).

5 LULUCF refers to the land use, land use change and forestry sector and covers the following categories; Forest land, Cropland, Grassland, Wetlands, Settlements, Other land and Harvested Wood products.

6 Each credit represents 1tonne of CO_2.

7 While all member states can use the LULUCF flexibility, member states where agriculture represents a significant portion of their national emissions profile received a higher share of the available 280 million credits. The EU implemented this policy to reflect the limited nature of abatement potential within the agriculture sector relative to other sectors of the economy.

Ireland's Zero Emissions Transition Challenge

The recognition of the need to place Ireland on the appropriate zero carbon pathway, combined with the emergence of short-term roadmaps, are very positive developments. However, the scale of the challenge to achieve our short- to medium-term targets is immense. In addition, delivery of the required emissions reductions in 2030 will need to be consistent with the longer-term roadmap which leads to full decarbonisation of the economy.

Recent EPA pronouncements suggest that Ireland is struggling to decouple economic and emissions growth. In 2018, Ireland's greenhouse gas emissions were 5.2 million tonnes (Mt CO_2e) beyond the required pathway to meet Ireland's 2020 non-ETS emissions target. The EPA forecasts that, at best, Ireland will only achieve a 5-6% emissions reduction in its non-ETS sector by 2020 compared to a target of 20%. They also warn that Ireland is currently not on the right trajectory towards decarbonisation in either the medium or longer term (2030 and 2050). By 2030, Ireland's non-ETS sector must reduce its emissions by 30% (compared to 2005 levels). Ireland must also comply with binding annual emissions limits for each year from 2021 to 2030. EPA projections indicate that emissions will continue to increase against the required decarbonisation trajectory, envisaging Ireland exceeding the allowable carbon budget implied by the annual limits by between 52 and 67Mt over the period (2021-2030).

The CAP sectoral abatement roadmaps, if realised, could deliver a cumulative non-ETS emissions reductions of 58.4MtCO_2e over 2021 to 2030, thereby enabling Ireland to comply with its 2030 non-ETS target. Within the ETS sector the CAP identifies 17MtCO_2e of potential abatement. This will be challenging as the plan requires that all abatements occur as scheduled in order to achieve the target.[8] The Government has indicated that failure to comply with Ireland's emissions target could result in a cost to the Exchequer of up to €1.75 billion over the next decade, as well as locking Ireland into a future high carbon trajectory.[9] EU efforts to raise the ambition of its 2030 emissions target could place further abatement pressure on Ireland. This could pose challenges for policy and necessitate the expansion of the suite of abatement options currently envisaged.

8 The Government indicates that the CAP is underpinned by 180 actions together with hundreds of sub actions.(www.gov.ie/en/press-release/31fe92-giving-ireland-a-sustainable-future/)

9 www.gov.ie/en/press-release/31fe92-giving-ireland-a-sustainable-future/

2.3 External Perspective on Decarbonisation Policy in Ireland

Professor John Fitzgerald, Chair of Climate Change Advisory Council

We spoke with Professor John Fitzgerald, Chair of the Climate Change Advisory Council, about possible policy or regulatory supports that could support businesses on their decarbonisation journeys. The Council was established under the Climate Action and Low Carbon Development Act 2015. It is an independent advisory body tasked with assessing and advising government departments and agencies on the actions required to decarbonise the Irish economy by 2050 and transition to a low carbon, climate resilient and environmentally sustainable economy.

What follows are some thoughts from John Fitzgerald on policy considerations.

ETS/Non ETS

It is important to distinguish between those companies subject to the European ETS scheme and those outside of this arrangement. Power producers and large emitters are in the ETS scheme and the associated carbon price dictates what actions they take to decarbonise. The ETS price is relatively low, and it is not anticipated to rise significantly under the current arrangements. Ongoing discussions to revise the scheme, currently supported by the French Government, are intended to increase the ETS carbon price and progress on this would strongly incentivise carbon reduction in this sector.

For those businesses outside of the ETS, the national carbon price is a significant consideration when making investment decisions. Recent falls in oil and gas prices weaken business cases for low carbon alternatives. Equally important for those making longer term investment decisions is the level of confidence in the plans to increase carbon tax over time.

Transport

Progress has been slow to date in this sector and affordability of low carbon technologies is a critical consideration. It seems probable that electric vehicles will be the most cost-effective solutions for smaller delivery vehicles with CNG (compressed natural gas) being deployed for heavy goods vehicles (HGVs) in the near term, and fuels such as biomethane or hydrogen being possible future solutions.

We are dependent on the availability of suitable models, the timing of which will be largely driven at an EU level. When logistics businesses operate internationally it is obviously critical that a suitable refuelling network exists throughout Europe before consideration can be given to replacing fleets to run on alternative fuels. As manufacturers are incentivised to increase the proportion of electric/low carbon vehicles in their fleets, it is possible that we will see an inflection point in the adoption of these vehicles. At a national level it will be important to clearly signal the intention to introduce more onerous obligations on owners of internal combustion vehicles. This can be in the form of carbon tax or National Car Test permitting, for example. It will also be important to consider the environmental and health co-benefits of decarbonisation. Quicker adoption could be driven by air quality/congestion initiatives in towns and cities.

Heat

The obvious first step in this sector is always energy reduction through efficiency measures. However, the cost and disturbance associated with deep retrofitting requires the implementation of additional measures to reduce carbon emissions in the built environment. In the short-term, the most economic option for many businesses may be to switch from oil to gas heating in advance of zero carbon options being made available. Situations where businesses produce excess heat options to contribute to district heating type schemes should be investigated.

Partnership

It is possible to envisage scenarios in which companies working together with the state, or state agencies, could provide innovative decarbonisation solutions. For example, producers of cement or aluminium with significant heat loads and carbon emissions could work together on pilot projects with the state in the areas of carbon capture and storage or hydrogen combustion.

With reference to the LULUCF sector discussed in section 2.2, policy makers should consider the appropriate timing for different interventions to make best use of available funds. For example, if there is a need for significant afforestation credits post 2030, schemes that bring in private sector investment now leading to significant tree planting between 2020 and 2030 would be of benefit. An offset type mechanism could be of interest in cases where companies have made early investment in energy efficiency type measurers and the next wave of initiatives is not yet feasible (or economic).

Whole System Consideration

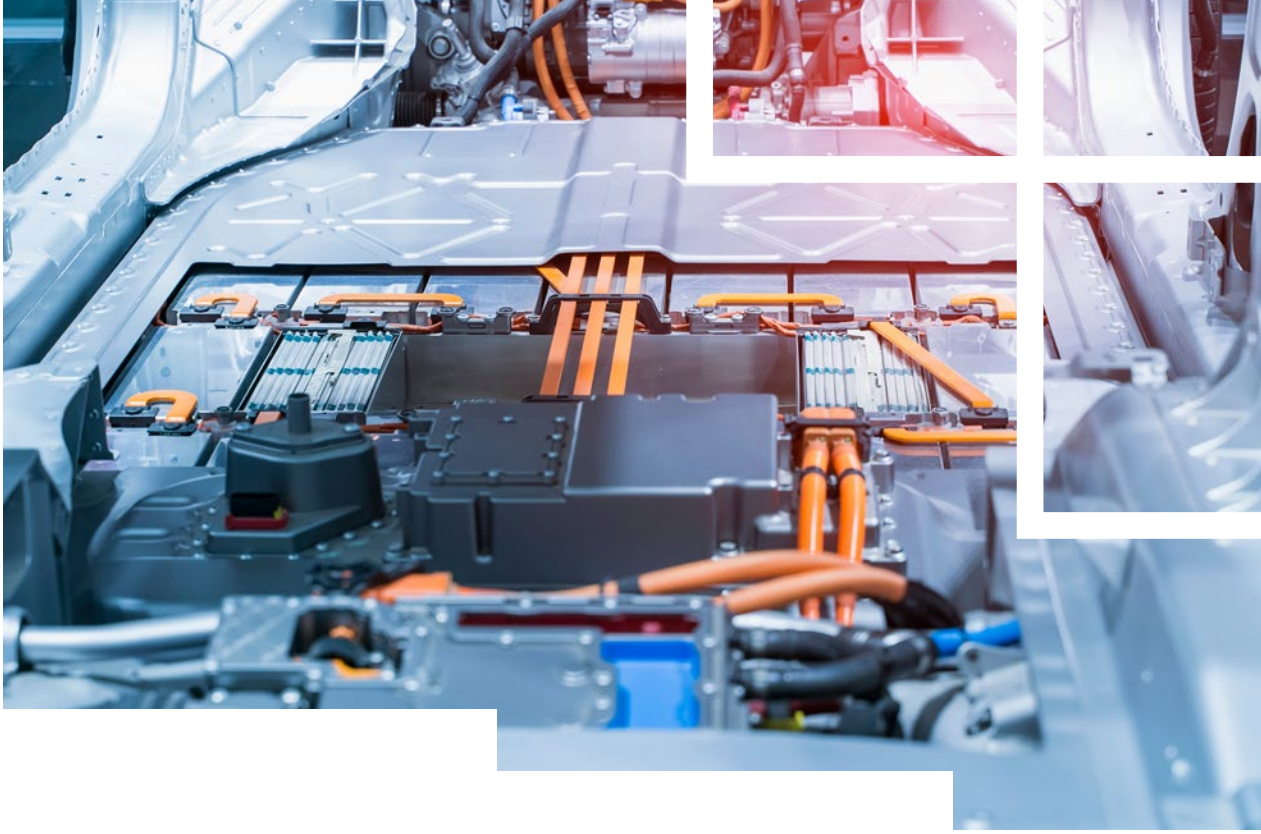
While it is desirable that businesses support the development of renewable generation, it is important that policy makers also address the wider issues of grid stability and meeting demand when renewable generation is not available. This will become more challenging as more domestic heat load and transport are electrified. Studies into how technologies, such as green hydrogen, energy storage, carbon capture, and batteries, can be combined with large-scale offshore wind and solar generation to deliver a zero-carbon energy system are urgently required. As a roadmap emerges, companies can then make informed decisions as to their own low carbon transition.

3

Building the Low Carbon Pledge Report

The Low Carbon Pledge Report aims to track the annual improvement in pledge companies' carbon footprint. It is underpinned by the pledge companies' provision of a range of carbon emissions data, in a detailed carbon data template. Monitoring and reporting on carbon emissions is commonplace across the business sector, with organisations generally reporting on their carbon emissions in a range of different ways.[10]

10 PwC did not audit emissions data provided by BITCI and participating companies.



3.1 Capturing Participating Company Emissions Data

45 companies listed in last year's report have also provided emissions data for 2019. 10 new companies have provided data for the 2020 report. These 10 companies have provided data for a baseline year and for 2019. The data analysis will focus on two groupings:

- 2018/2019 emissions performance of the 45 original Low Carbon Pledge companies who also provided data for 2019; and
- 2019 emission benchmarking of the 10 new signatory companies.

To ensure consistency and comparability of emissions recording efforts across various companies, BITCI utilised a carbon data template[11] to facilitate the emissions data capture process and quantification of each companies' carbon footprint. Specifically, companies were asked to:

- Identify all scope 1 and 2 carbon emissions[12] sources and state how these are recorded and reviewed.
- Provide the totals for each emissions source for the current year (e.g. total volume of natural gas, total volume of purchased electricity, litres of fuel used in company vehicles, kilogrammes of refrigerants used in air conditioning systems).
- State the carbon conversion factors used to quantify the CO_2 impact of the raw material of each scope 1 and 2 emissions source.
- State the level of assurance provided on the carbon data and the calculations taken place, e.g. do companies undertake internal verification of their raw data or seek external verification of data, including the acquisition of third-party assurance.

In order to facilitate expanding the scope of the Low Carbon Pledge companies were asked to provide the following aspects of scope 3 emissions: business travel, waste generated by the company and water consumption. 29 companies provided BITCI with scope 3 data for 2019. While 2019 scope 3 data provides us with some interesting insights, this will become more valuable over the coming years, as we can analyse fluctuations in the data year on year.

11 The design of the Carbon Data Template was underpinned by the internationally recognised Greenhouse Gas Protocol Corporate Standard.

12 Scope 1 emissions refer to emissions that arise directly from sources that are owned or controlled by a company. Scope 1 emissions are generally derived from four sources: Stationary (combustion of fuels in stationary sources (e.g. boilers, furnaces, turbines)); Mobile (combustion of fuels in company owned or controlled vehicles (e.g. cars, vans, trucks, trains)); Process (emissions resulting from the processing or manufacture of chemicals and materials (e.g. cement, aluminum, waste processing)); and Fugitive (emissions resulting from intentional or unintentional releases (e.g. hydrofluorocarbon emissions released from the use of air conditioning or chilling systems, methane leakage from gas transport)). Scope 2 emissions refer to emissions generated during the production of electricity purchased by a company.

All 55 of the Low Carbon Pledge signatory companies participating in this report provided BITCI and PwC with their self-reported direct carbon emissions data on the basis of the carbon data template.

Table 1. 55 Low Carbon Report Participants[13,14]

Company	Sector
A&L Goodbody	Professional Services
ABP Ireland	Agribusiness
AIB Group	Professional Services
Aldi	Retail
An Post	Communications
Arup	Professional Services
AXA Insurance	Professional Services
Aviva	*Professional Services*
Bank of Ireland Group	Professional Services
Boston Scientific	Pharma/MedTech
BT	Communications
Cairn Homes	*Construction*
Central Bank	Professional Services
Dawn Meats Group	Agribusiness
Deloitte	Professional Services
Diageo Ireland	Food & Drink
Dublin Bus	*Transport*
EirGrid	Energy / Utilities
Enterprise Rent-a-Car	Transport
ESB Group	Energy / Utilities
Fujitsu Ireland	Technology
Gas Networks Ireland	Energy / Utilities
Heat Merchants Group	Retail
Heineken Ireland	Food & Drink
Hovione Ireland	Pharma/MedTech
Irish Water	*Energy / Utilities*
J&J - DePuy	Pharma/MedTech
J&J - Vison Care	Pharma/MedTech
Janssen Pharmaceutical Sciences UC	Pharma/MedTech

Company	Sector
KBC Bank Ireland	Professional Services
KMPG	Professional Services
Lidl Ireland	Retail
Marks & Spencer (Ireland)	Retail
Matheson	Professional Services
Mercury Engineering	*Professional Services*
Musgrave Group	Retail
Northern Trust	*Professional Services*
NortonLifeLock	Technology
Ornua	Agribusiness
Permanent TSB	Professional Services
PM Group	Professional Services
PwC Ireland	Professional Services
Ricoh Ireland	Professional Services
RTÉ	*Communications*
Sherry Fitzgerald	*Professional Services*
Sky Ireland	*Communications*
Sodexo Ireland	Retail
SSE Ireland	Energy / Utilities
Tesco Ireland	Retail
Ulster Bank Ireland DAC	Professional Services
Veolia	Energy / Utilities
Verizon	*Communications*
Virgin Media Ireland	Communications
Vodafone Ireland	Communications
William Fry	Professional Services

Existing companies

New companies in 2020

13 The Retail sector also captures companies involved in the sale and provision of services, e.g. hospitality and catering services, on-site service solutions, heating and plumbing equipment. Financial Services and Engineering firms are grouped within the Professional Services sector as they are office-based, provide a service and have a carbon footprint based on similar emissions sources to the other companies within this category.

14 As of May 2020, 58 companies have signed up to the BITCI Low Carbon Pledge. Data from Britvic Ireland, College Proteins Group and Iarnród Éireann (Irish Rail) will feature in next year's report.

3.2 | Emissions Data Verification

53% of Low Carbon Pledge companies received external verification of their 2019 carbon emissions data

Carbon emissions reporting has moved from something that used to be a 'nice-to-have', to something that stakeholders now expect from companies. With this external focus comes the risks associated with inaccurate and incomplete reporting. Ensuring that the verification, both internally by the company and externally by a third party, of emissions data is robust and accurate is the best method to mitigate against these risks.

Last year's report found that, from analysis of the 47 Low Carbon Pledge signatories, the Irish market was still quite immature in the area of sustainability reporting and assurance, in comparison for example to the UK market. However, it did demonstrate that awareness was growing. While all companies reported a measure of internal validation in 2018, the methods and sophistication of the validation processes varied greatly.

This year's report provides an opportunity to reassess the Irish market's progress on improving the validation and reporting of its carbon emissions data. The increased number of signatories also provides a wider perspective of the Irish market.

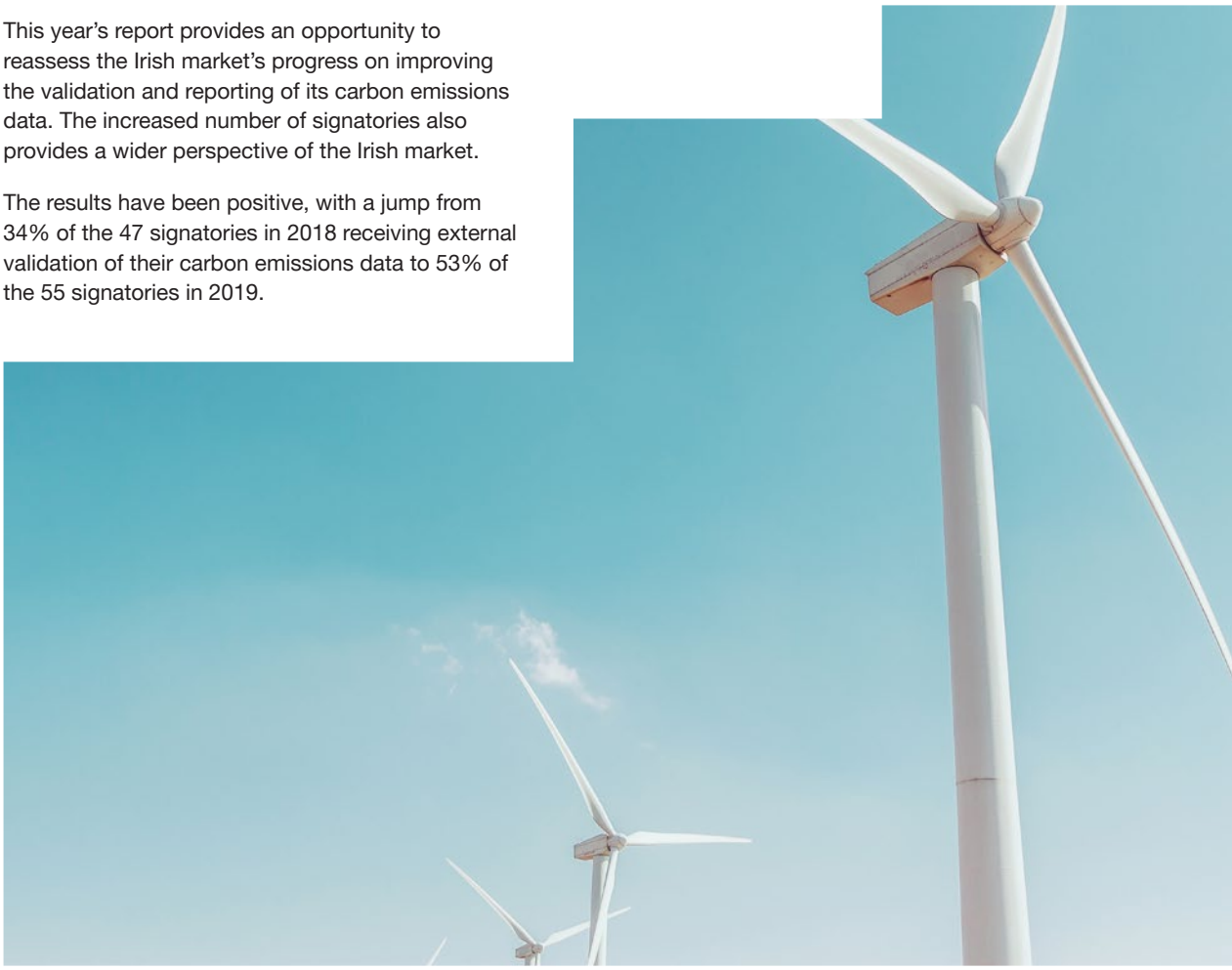
The results have been positive, with a jump from 34% of the 47 signatories in 2018 receiving external validation of their carbon emissions data to 53% of the 55 signatories in 2019.

The next step, for those signatories receiving external third-party validation of their data, is to increase the level of scrutiny that their carbon emissions data undergoes. As the standard of the third-party validation increases, so too will stakeholder confidence in the data being reported.

Of the 45 remaining signatories from 2019, 16% made a significant improvement in the standard of the external validation to their carbon emissions reporting received over the year. However, the validation of carbon emissions reporting is still an area for improvement. Although the percentage of companies receiving some form of external validation increased, 47% of signatories are receiving no external challenge or scrutiny on the emissions data they report.

More pressing are the 17% of companies with no internal verification procedures in place. Without this it is difficult to rely on the data. Can management be confident in the accuracy and completeness of their carbon emissions data reported without some form of internal verification?

With further guidelines on reporting carbon emissions released by the European Commission in June 2019, as well as Task Force on Climate-related Financial Disclosures (TCFD) recommendations gaining momentum, emissions data verification is an area that companies will continue to see increased focus on going forward.



4

Low Carbon Pledge - Summary Findings

The Low Carbon Pledge requires signatory companies to reduce the intensity of their scope 1 and scope 2 carbon emissions by 50% by 2030 and to review year-on-year scope 1 and scope 2 carbon emissions with the aim of demonstrating continuous improvement in abatement activity. The analysis of companies' self-reported emissions data for 2019 provides insights into how the business sector is working towards improving their carbon impact and we can now compare performance versus the 2018 benchmark data.

Pledge Reminder:

Signatories of the Low Carbon Pledge have committed to reducing their carbon emissions intensity by 50% by 2030.

Of the 47 original pledge companies, 45 remain and 10 more companies provided data for 2019.

Overall progress against pledge targets

Average emissions intensity reduction per pledge company:

2018:

36%

2019

41%

How did the original group of pledge companies perform?

Absolute carbon emissions of the 45 original signatories equalled 7.5 $MtCO_2e$ in 2019, down 18% from 9.2 $MtCO_2e$ in 2018.

18%

Of the 45 original Low Carbon Pledge companies, 35 have further reduced their emissions intensity between 2018 and 2019. Among these 35 companies, the average intensity reduction was 20%.

20%

How did the new pledge companies perform?

The 10 new signatory companies have reduced absolute carbon emissions by 38% from their baseline year.

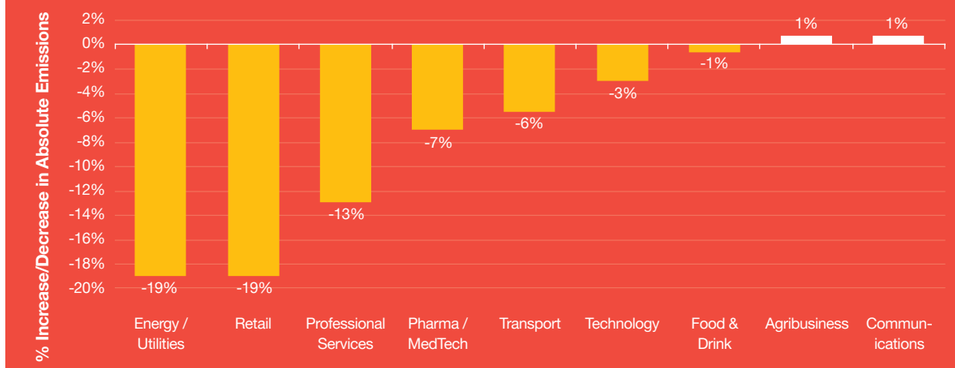
38%

Sectoral Performance

The 55 signatory companies represent ten different sectors.

The 6 companies in the Energy and Utilities sector have the largest carbon footprint, accounting for 93% of total scope 1 and 2 emissions amongst pledge companies in 2019.

2018 - 2019 Total Absolute Emissions Reduction

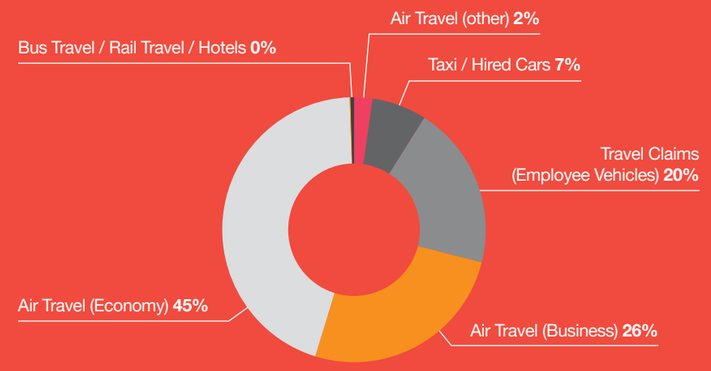


Scope 3 Emissions

29 companies provided BITCI data for the following elements of their scope 3 emissions: business travel, waste generated in operations and water consumption.

Carbon emissions linked to business travel accounted for 91% of the 29 pledge companies' scope 3 emissions in 2019.

Business Travel Emissions by Source, 2019



4.1 | Results Overview 2019

Due to the non-standardised nature of baseline year choice by companies, the key data comparison is with 2018. As the recent collection exercise has yielded 55 data sets for 2019, it is not possible to do a direct comparison with 2018 emissions data. Therefore, the analysis will focus on two groupings:

- 2018/2019 emissions performance of the 45 original Low Carbon Pledge companies who also provided data for 2019; and
- 2019 emission benchmarking of the 10 new signatory companies.

Original Low Carbon Pledge Participants

Absolute emissions reduced by 18% (1.69 $MtCO_2e$) between 2018 and 2019.

The 45 original Low Carbon Pledge companies have now reduced their absolute emissions by 52% between the Baseline Period and 2019.

The first Low Carbon Report identified that pledge companies had decreased absolute carbon emissions by 42% between the baseline period and 2018[15]. Companies have successfully built on that progress in 2019, with a 52% reduction in absolute emissions of the remaining 45 companies between 2019 and the baseline year. Absolute carbon emissions of the 45 companies equalled 7.5 $MtCO_2e$ in 2019, down 18% from 9.2 $MtCO_2e$ in 2018[16]. The biggest improvement was seen in scope 1 data, which was down 19% on 2018, to 7.3 $MtCO_2e$ in 2019. Scope 2 carbon emissions decreased by 9% amongst the 45 signatory companies in 2019, reducing to 0.2 $MtCO_2e$ in the year. Scope 1 emissions still account for the vast majority of carbon emissions amongst signatory companies, responsible for 97% of total emissions, with scope 2 generating the remaining 3%.

Figure 1: 45 Original Low Carbon Pledge Companies' Absolute Emissions Reduction, 2018 v 2019

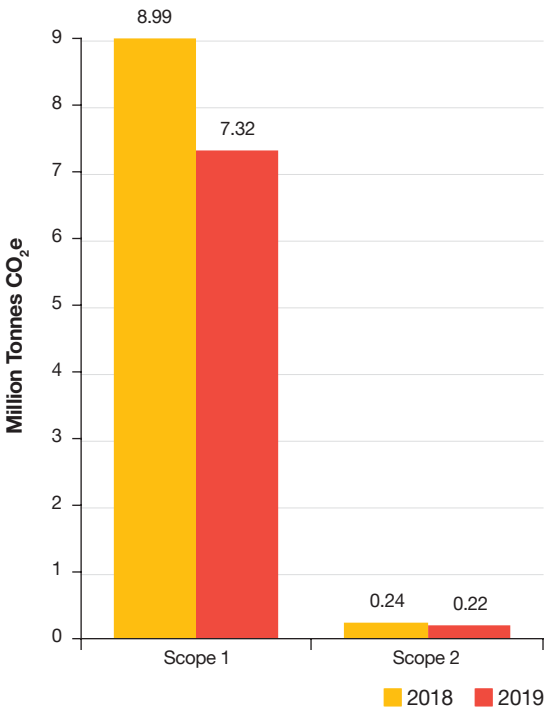


Table 2: Original 45 Pledge Companies' Total Scope 1 and 2 Emissions (Million Tonnes CO_2e)

Carbon Emissions ($MtCO_2e$)			
	Scope 1	Scope 2	Total Scope 1 & 2
2018	8.99	0.24	9.23
2019	7.32	0.22	7.54

Emissions Intensity

For a company experiencing strong growth, it is important to look beyond the absolute carbon reduction and also consider carbon intensity. With signatory companies committing to reducing their carbon emissions intensity by 50% by 2030, the availability of pledge company carbon data provided an opportunity to assess companies' historical emissions intensity reduction efforts.

15 In the 2019 Low Carbon Report, pledge companies provided data for a baseline year, between 2005 and 2018.

16 Emissions of 9.3 $MtCO_2$ in 2018 were reported in the 2019 Low Carbon Report, this figure has been adjusted to remove the two companies who did not provide data for this year's report.

The signatory companies have distinct business models and operate in multiple sectors. Each elected to report against the most appropriate emissions intensity factors[17]. These ranged, for example, from square footage of the business operations, to the number of staff. It is therefore not appropriate to report a collective or aggregated emissions intensity of the Signatory companies. However, analysing companies' emissions intensity data indicates a positive replication of the emissions reduction behaviour evidenced in the analysis of companies' absolute emissions data.

Analysis of 2018 and 2019 emissions intensity data indicates that many companies have successfully reduced the emissions intensity of their business operations. Of the 45 original Low Carbon Pledge companies, 35 have further reduced their emissions intensity in 2019, 4 companies saw no material change, and 6 companies saw an increase on 2018 emissions intensity levels. Among the 35 companies who reduced their emissions intensity in 2019, the average intensity reduction was 20%.

As stated, companies who have signed up to the Low Carbon Pledge have committed to reduce their carbon emissions intensity by 50% by 2030. In order to depict how this has changed, we show the relative performance across Figure 2 and 3. Figure 2 shows the progress across the original 47 Low Carbon Pledge companies between their chosen baseline year and 2018. As reported last year, the average intensity reduction among the 47 companies was 36%. Figure 3 shows the progress of the current 55 Low Carbon Pledge companies between their chosen baseline year and 2019. The average intensity reduction of the 55 companies between their baseline year and 2019 is now 41%.

As evidenced in the below charts, progress made to date has been significant among Low Carbon Pledge companies. The critical challenge remaining will be for companies to sustain such reduction efforts and focus on delivering further intensity improvements out to 2030, particularly as any "quick wins" to reduce carbon emissions will be already implemented. Setting science-based targets to 2030 and beyond is one method to create an environment conducive to carbon reduction innovation.

Figure 2: Original 47 Low Carbon Pledge Companies, Emissions Intensity Reduction %, Baseline - 2018

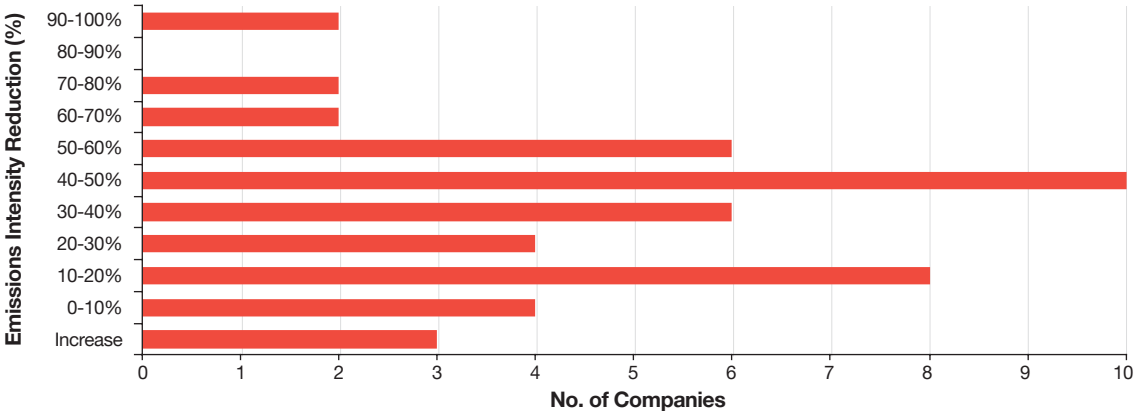
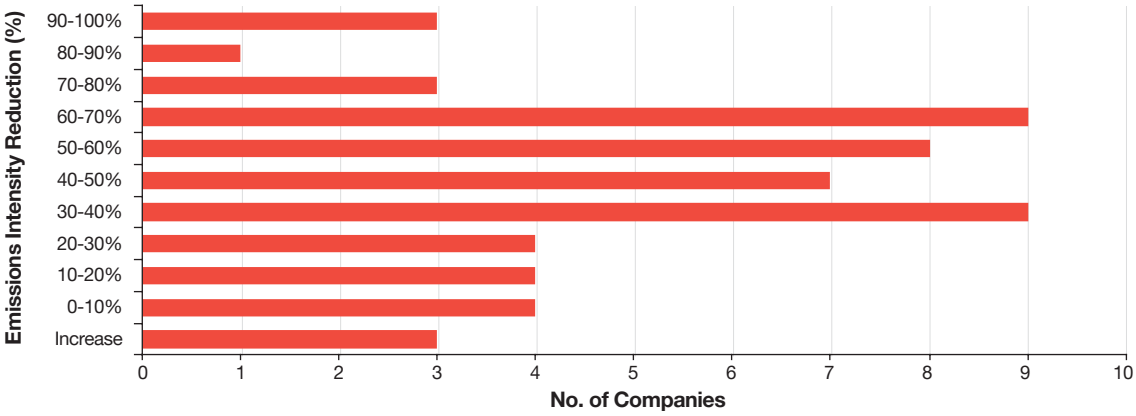


Figure 3: 2020 55 Low Carbon Pledge Companies, Emissions Intensity Reduction %, Baseline - 2019



17 An emission intensity factor is the emission rate of a given pollutant relative to the intensity of a specific activity, industrial production process or category. Examples of intensity factors utilised by Signatory companies include: tonnes of CO_2e/number of full time employees; tonnes of CO_2e/output levels; tonnes of CO_2e/total area of office space; tonnes of CO_2e/operating income.

New Low Carbon Pledge Participants

An additional 10 companies submitted data for the Low Carbon Report in 2019, with 3 more committing to submitting data next year. These companies provided data on their carbon emissions for 2019[18] and a baseline year (varying between 2008 and 2018).

As seen in figure 4, the 10 new signatory companies have made significant progress in reducing their carbon emissions over the past number of years, with total absolute scope 1 and 2 emissions down 38%. New pledge companies have made a significant effort to reduce their emissions from purchased electricity over the last number of years, with scope 2 emissions down 40%. Many companies have undertaken comprehensive programmes to gain an in-depth understanding of the composition of their electricity usage, in order to target specific areas they can address to achieve the most progress. Notably, due to the nature of the new pledge companies' businesses, the distribution of emissions between scope 1 and 2 is very different in comparison to the original signatories. Emissions from purchased electricity (scope 2) account for 82% of total 2019 emissions among the 10 companies.

Emissions Intensity

8 out of the 10 new pledge companies have successfully reduced their carbon emissions intensity over the past number of years. As seen in figure 5 below, 3 new pledge companies decreased their emissions intensity by between 50 and 60% between their baseline year and 2019.

Figure 4: New Low Carbon Pledge Companies' Absolute Emissions Reduction, Baseline v 2019

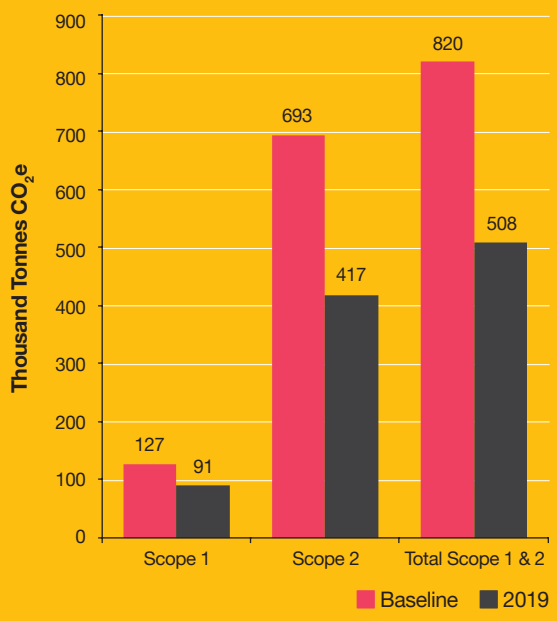
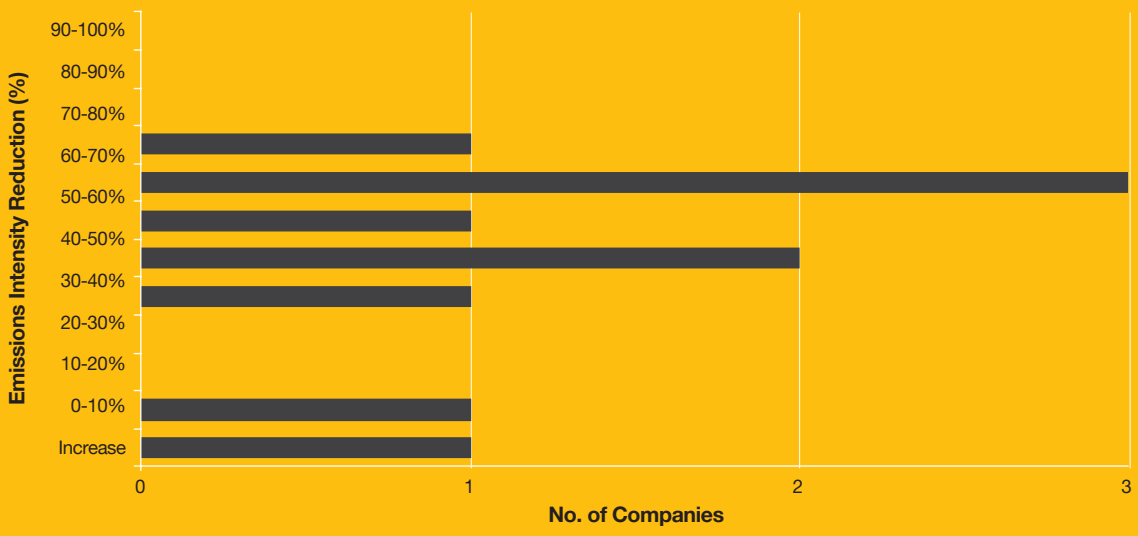


Table 3: 10 New Pledge Companies' Total Scope 1 and 2 Emissions ('000 Tonnes CO_2e)

Carbon Emissions ('000 tCO_2e)			
	Scope 1	Scope 2	Total Scope 1 & 2
Baseline	126.51	693.37	819.87
2019	91.26	417.06	508.32

Figure 5: 10 New Signatory Pledge Companies' Emissions Intensity Reduction (%), Baseline v 2019

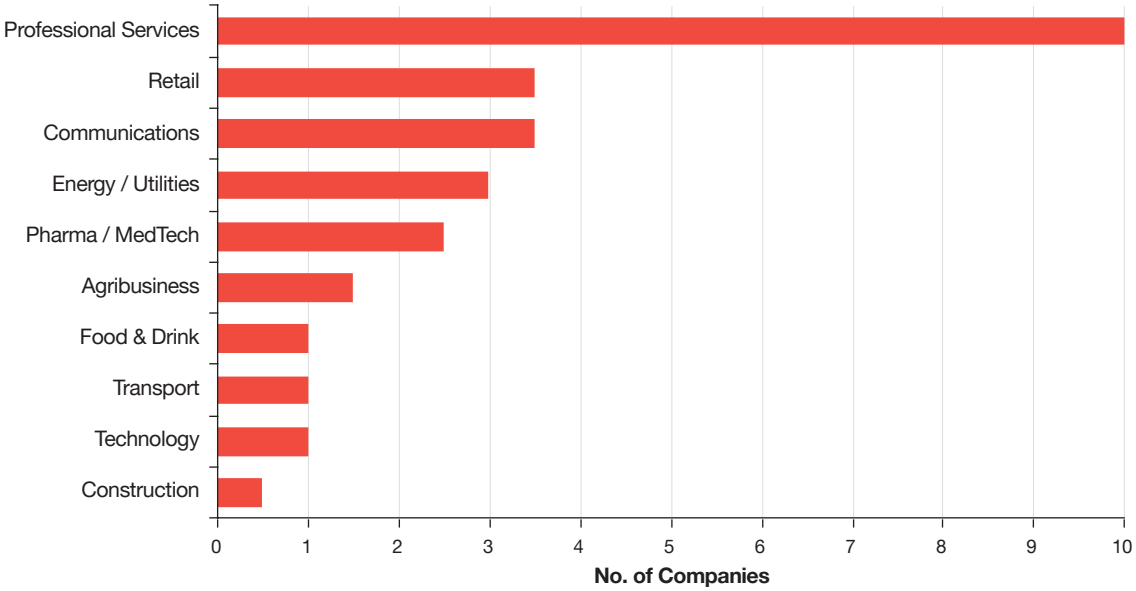


18 1 of the 10 new Low Carbon Pledge companies has provided data for a baseline year and 2018, as 2018 was the most recently audited carbon emissions data available.

4.2 | Sectoral Emissions Insights and Emissions Drivers

55 companies have provided data for the 2020 Low Carbon Report. 45 companies remain committed to the Pledge since 2018, and promisingly, an additional 10 companies have provided data in 2019. The 55 signatory companies represent ten different sectors[19].

Figure 6: Low Carbon Pledge Signatory Company Sectoral Composition



Professional Services firms continue to account for the highest number of signatory companies, with an additional 4 companies committing to the Pledge in 2019. The Communications sector also saw a notable increase in participation, with a further 3 companies signing the Low Carbon Pledge in 2019.

36% of Low Carbon Pledge companies are in the Professional Services sector.

The Professional Services sector has shown strong engagement with the Low Carbon Pledge, with 20 companies signed up to date. Engaging with the decarbonisation and sustainability agenda is becoming increasingly important to the clients and staff of Professional Services firms. Companies are facing increasing scrutiny on their sustainability credentials as they look to win clients and attract talented staff.

While only 6 of the 55 pledge companies are in the Energy and Utilities sector, these companies have by far the largest carbon footprint. They account for 93% of the total scope 1 and 2 carbon emissions analysed in 2019.

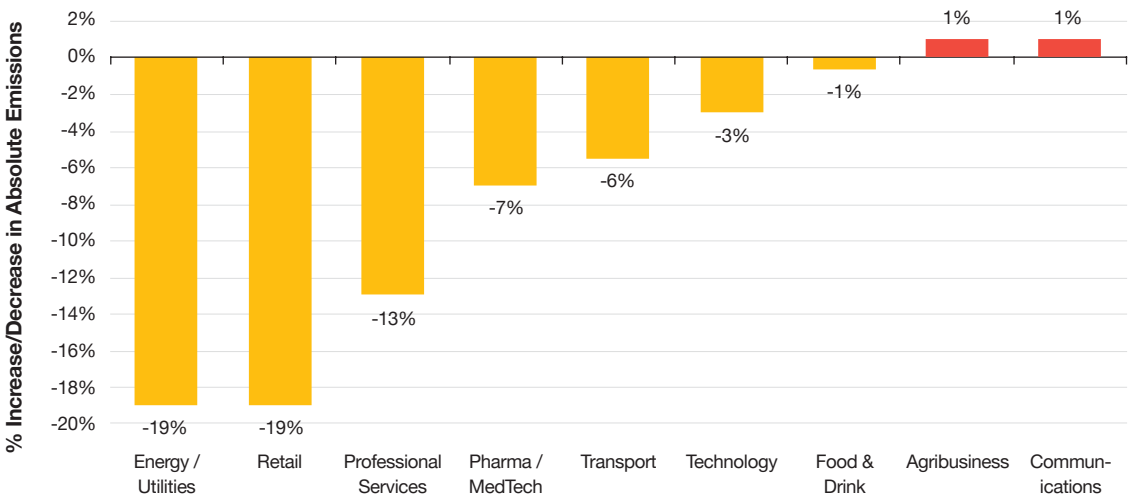
The 6 companies in the Energy and Utilities sector have the largest carbon footprint, accounting for 93% of total scope 1 and 2 emissions amongst pledge companies in 2019.

Original Low Carbon Pledge Participants

Figure 7 outlines the percentage change, by sector, in total emissions of the 45 original Low Carbon Pledge companies between 2018 and 2019. The Energy and Utilities sector, the largest contributor to carbon emissions in the group, successfully decreased their scope 1 and 2 emissions by 19% in 2019. These companies are continuing to build on strong progress over the past number of years, with a 42% emissions reduction up to 2018. A significant decrease in carbon emissions was achieved due to reductions in coal and peat burning, combined with reductions in gas pipe leakage over the last two years. Modest progress was seen in the Communications, Agribusiness, and Food and Drink sectors in 2019, which may indicate that more straightforward decarbonisation initiatives have been implemented.

19 The Retail sector also captures companies involved in the sale and provision of services, e.g. hospitality and catering services, on-site service solutions, heating and plumbing equipment. Financial Services and Engineering firms are grouped within the Professional Services sector as they are office-based, provide a service and have a carbon footprint based on similar emissions sources to the other companies within this category.

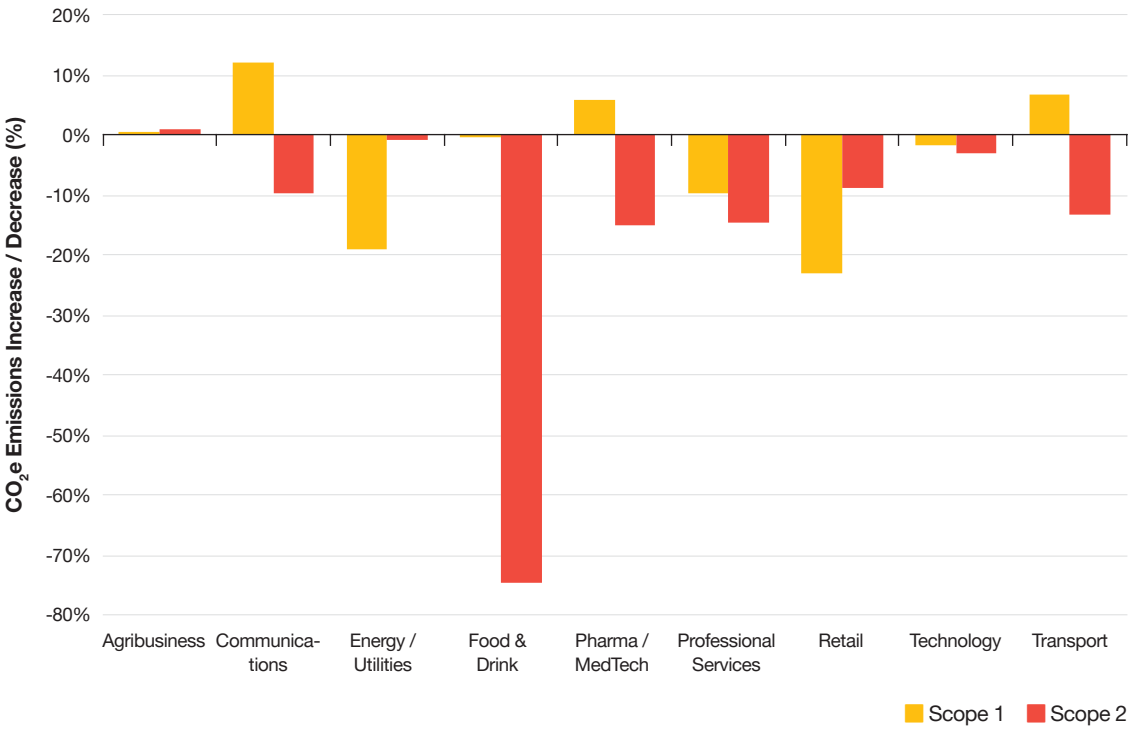
Figure 7: 2018 - 2019 Total Absolute Emissions (Scope 1 and 2) Reduction (%)



The 45 original pledge companies reduced their scope 1 emissions by a further 19% (1.67MtCO_2e) with scope 2 emissions reduced by 9% (22,500 CO_2e). Disaggregating total sectoral emissions data provides some valuable insights. While emissions from purchased electricity increased among Agribusiness companies, all other sectors successfully decreased their emissions from purchased electricity in 2019. This is primarily driven by national efforts to decarbonise Ireland's electricity grids and the use of local-based emissions factors for purchased electricity in this report. The carbon emissions factor associated with purchased electricity in Ireland has itself fallen by 10% between 2018 and 2019, with the increased penetration of renewables on our grid.

Pledge companies in the Food and Drink sector experienced no material change in scope 1 emissions in 2019, while companies in the Retail sector managed to reduce their scope 1 emissions by 23%, through extensive investment in decarbonising refrigeration systems, amongst other initiatives.

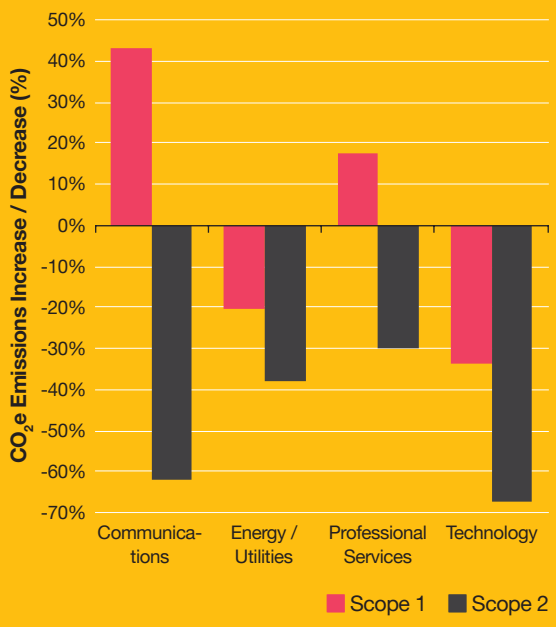
Figure 8: 2018 - 2019 Sectoral Emissions Trajectory (%)



New Low Carbon Pledge Participants

The 10 new carbon pledge companies all provided data for a baseline year (varying between 2008 and 2018) and 2019. All sectors effectively reduced total scope 1 and 2 emissions between the baseline year and 2019. However, while all sectors achieved a reduction in emissions from purchased electricity over the past number of years, scope 1 emissions increased for the new Communications and Professional Services signatories, due to an increase in the use of refrigerants for air conditioning and diesel for company cars, respectively.

Figure 9: Baseline - 2019 Sectoral Emissions Trajectory (%)



4.3 Understanding Scope 1 and 2 Emissions

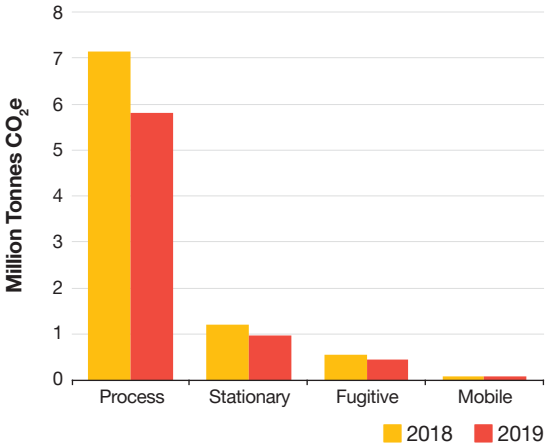
Original Low Carbon Pledge Participants

Scope 1 emissions are composed of four principal emissions sources: Process, Stationary, Fugitive and Mobile. Figure 10 demonstrates that all scope 1 emissions sources have decreased.

Process Emissions	Emissions resulting from processing or manufacturing of materials
Stationary Emissions	Combustion of fossil fuels in boilers, furnaces, turbines
Fugitive Emissions	Emissions from air conditioning or chilling systems
Mobile Emissions	Fossil fuel use in company vehicles

Absolute scope 1 emissions decreased by 19% in 2019 (1.67MtCO_2e). This was primarily driven by a 19% reduction in process emissions, which accounted for 79% of total scope 1 emissions in the year. Strong progress was seen across the board, with all four scope 1 categories experiencing a decrease in emissions from 2018 levels.

Figure 10: Scope 1 Emissions Sources, 2018 - 2019



Signatory companies successfully reduced emissions across all four of the scope 1 emissions categories in 2019.

4.3.1 Process Emissions

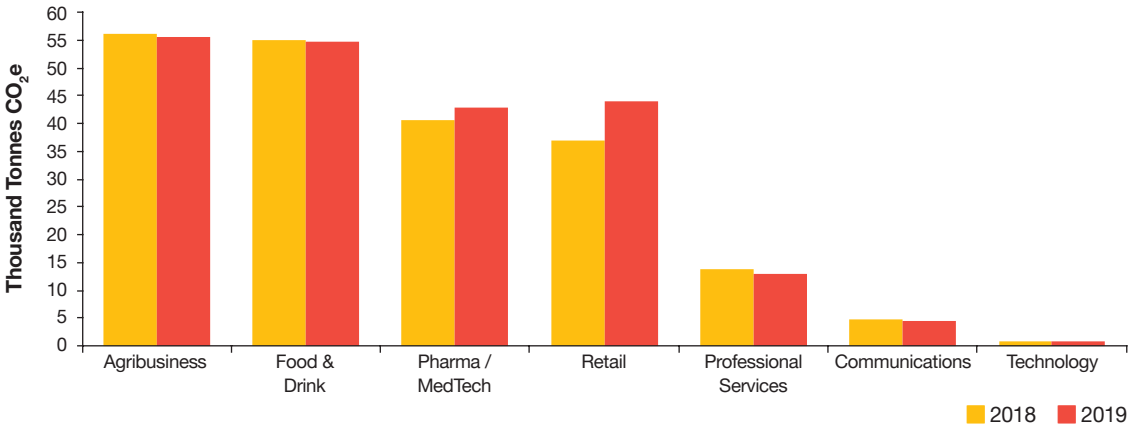
Companies in the Energy and Utilities sector were the only contributor to process emissions in 2019. Process emissions declined from 7.1MtCO_2e to 5.8MtCO_2e between 2018 and 2019. Increasing focus on investment in renewable electricity generation and participation in the EU Emissions Trading Scheme (EU ETS) are driving down process emissions. Pledge companies in the Energy and Utilities sector also reduced the use of coal and peat for energy generation in 2019, significantly reducing their process emissions.

4.3.2 Stationary Emissions

Stationary emissions are prevalent amongst signatory companies, with all but one reporting stationary emissions in 2019. Due to continued investment in renewable energy production, renewables met 32.5% of electricity demand in Ireland in 2019; the second highest in Europe[20]. Accordingly, Energy companies relied less on thermal generation which drove down emissions. As seen in Figure 11 below, stationary emissions increased slightly across a number of sectors in 2019.

CO_2 emissions from the combustion of natural gas represents the most significant source of stationary emissions amongst the 45 original pledge companies, with 43 companies reporting the use of natural gas for heating in both 2018 and 2019. However, while prevalent, a decline in companies' use of natural gas has helped to drive a reduction in stationary emissions over the past year. Signatory companies reduced their emissions associated with natural gas for heating by 5% to 170,000 tCO_2e in 2019.

Figure 11: Stationary Emissions Sources Absolute Emissions Trajectory



20 Irish Wind Energy Association, 2019 Annual Report

4.3.3 Fugitive Emissions

Fugitive emissions are generated by two main sources: companies' use of refrigerants in air conditioning systems and product chilling and cooling systems. The most notable effort to reduce fugitive emissions has been a decrease of 60% in the Retail sector. This is owing to continued investment in cleaner, more energy efficient refrigeration systems in stores and warehouses across the country.

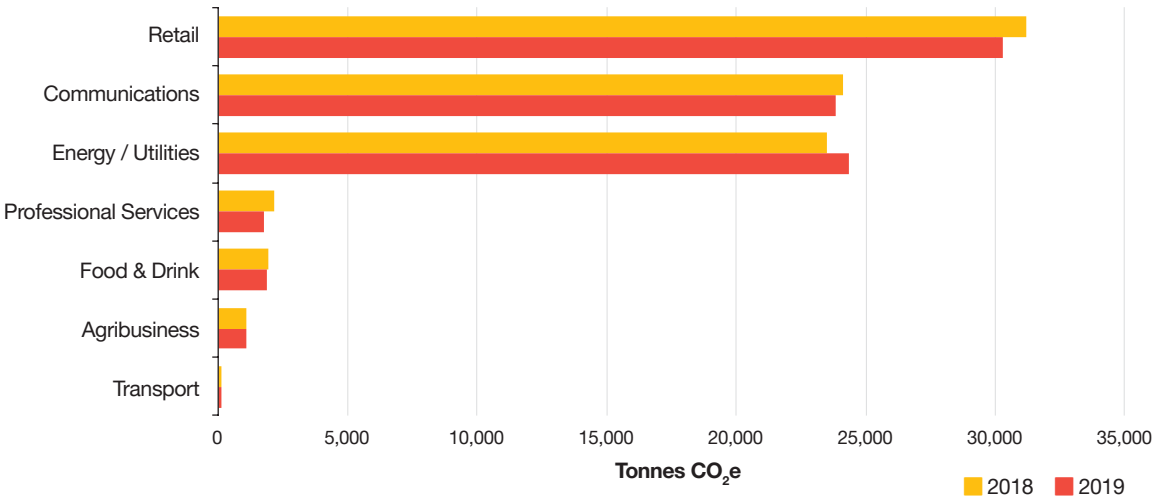
Retail companies reduced their fugitive emissions by 60% in 2019, through continued investment in cleaner, more energy efficient refrigeration systems.

4.3.4 Mobile Emissions

The use of fossil fuels for company vehicles is the largest contributor to mobile emissions. In 2019, the use of diesel accounted for 99% of all mobile emissions, totalling over 82,000tCO_2e. Mobile emissions have experienced the least reduction of all scope 1 emission types, decreasing by only 1% in 2019. As seen in figure 12 below, while mobile emissions have decreased across some sectors, the progress made is not as significant as other emission categories.

The use of diesel in company vehicles accounts for 99% of all mobile emissions.

Figure 12: Sample Mobile Emissions Sources Absolute Emissions Trajectory



Companies across the Agribusiness, Retail, and Food and Drink sectors generate mobile emissions from the use of both heavy and light goods vehicles as part of their own logistics operations and to deliver products to customers. Within the Energy and Utilities and Communications sectors, a mixed vehicle fleet is required to maintain continuity of service supply (e.g. electricity, gas, broadband) to customers.

Investment into improving both vehicle fleet efficiency, including the introduction of electric vehicles, and driver efficiency are key to decarbonising company transport emissions. Within sectors where mobile emissions have decreased, companies have been making such investments. For example, as of February this year, An Post is delivering all letters and parcels in Dublin city centre using zero-emission vehicles, avoiding 450 tonnes of CO_2. This will be rolled out to Cork, Galway, Kilkenny, Limerick and Waterford by the end of 2020. An Post has already invested €7.5 million in its electric fleet, totalling 212 electric vehicles and expected to exceed 900 vehicles within two years.[21]

4.4 Understanding Scope 2 Emissions

Original Low Carbon Pledge Companies

Collectively all sectors reduced their scope 2 emissions by 22,500 tCO_2e (9%) in 2019. Scope 2 emissions arise from carbon emissions linked to electricity consumed by a company. In an effort to reduce these emissions, a number of companies indicated that they have purchased electricity generated from renewable sources. Energy efficiency measures are another way to decrease scope 2 emissions by reducing overall consumption.

In 2019 73% of pledge companies reduced their scope 2 emissions, indicating that businesses are actively undertaking initiatives to reduce their electricity consumption. Energy audits are being used to help companies identify energy-intensive processes. Investment in energy efficient equipment, low energy lighting systems and building management systems are helping companies achieve significant reductions.

73% of Pledge Companies reduced their scope 2 emissions from electricity usage in 2019.

The Pharma/MedTech sector reduced their CO_2 emissions from purchased electricity by 15% in 2019.

21 'Every An Post delivery in Dublin city centre now emission free', The Irish Times, February 2020

Scope 1 and 2 Emissions Amongst New Low Carbon Pledge Participants

New pledge companies reduced their scope 1 emissions by 28% between the baseline year (2008-2018) and 2019 with particularly good reductions in stationary emissions of 57%, driven by a decrease in the use of natural gas for heating. New pledge companies have reduced their mobile emissions by 28% to 2019. This is primarily driven by the decreased use of diesel, as companies have moved away from providing company cars. The composition of the 10 new signatories' scope 1 emissions varies significantly by sector. However, the vast majority of scope 1 emissions across the new signatories are from diesel, natural gas for heating, petrol and refrigerant.

Use of diesel accounted for 84% of all scope 1 emissions of new signatory companies in 2019.

Scope 2 Emissions Amongst New Low Carbon Pledge Participants

Emissions from purchased electricity declined by over 275,000 CO_2e (40%) between the baseline year and 2019 amongst the new Low Carbon Pledge signatories. Strong progress was seen across all sectors, as evidenced in figure 14 below, with the significant progress owing to the fact that many new pledge companies have undertaken dedicated programmes to reduce their energy consumption over the past number of years.

Figure 13: Scope 1 Emissions Sources, Baseline versus 2019

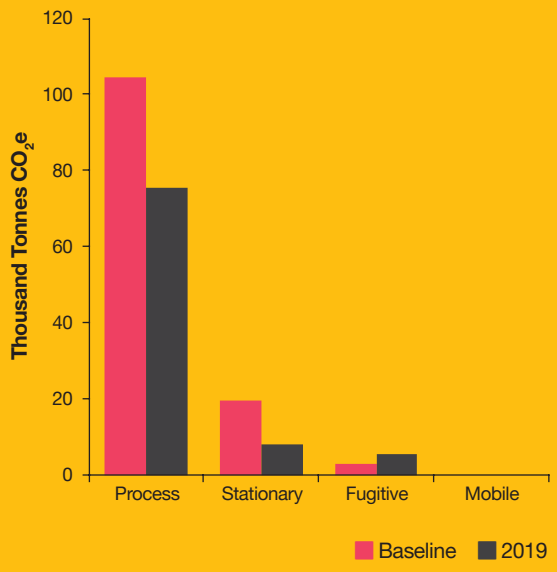
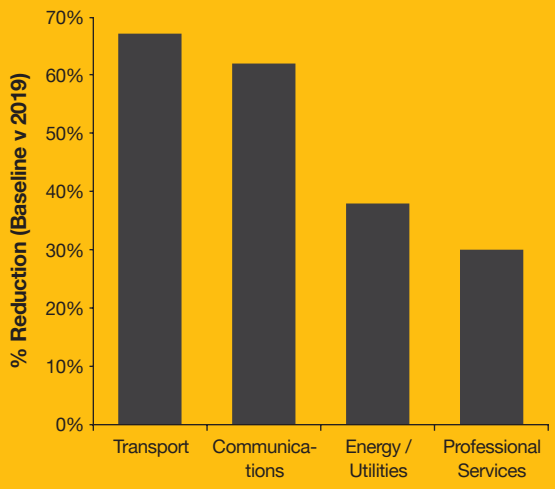


Figure 14: Reduction in Emissions from Purchased Electricity, Baseline Year versus 2019 (%)



5

Increasing the Decarbonisation Ambition – Scope 3 Emissions

Ultimately companies must become aware of their total carbon footprint, and then set targets to reduce this in line with national and international targets. Many companies are turning to science-based emission reduction targets to define their carbon reduction ambition with reference to the goals set under the Paris Agreement, i.e. to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.

5.1 Introducing Scope 3 Emissions

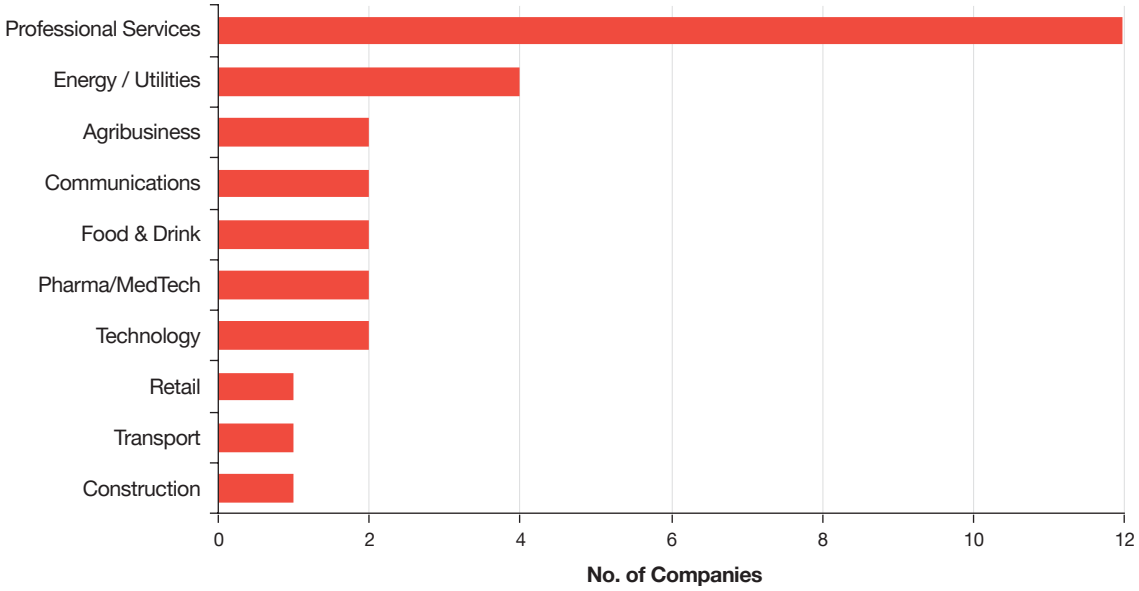
The inaugural Low Carbon Pledge focused on a company's more immediate carbon emission sources (scope 1 and 2). This is considered an important first step, however, this perspective does not give a full picture of a company's entire carbon footprint. Scope 3 emissions include all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. Whilst emissions from energy generated directly (scope 1) and indirect emissions from energy used from third party suppliers (scope 2) are relatively well understood by the business community there is a need to enhance understanding of scope 3 reporting.

For many sectors, the carbon emissions associated with a company's value chain far outweigh their direct emissions. According to CDP, on average, approximately 80% of a reporting organisation's greenhouse gas emissions are scope 3 emissions. With this in mind, BITCI raised the ambition of the Low Carbon Pledge to incorporate aspects of scope 3 into the reporting process. In the 2019 reporting period companies were offered the opportunity to report on the following sub-categories: business travel; waste generated; and water consumption. These were selected as they are relevant to total emissions, and are relatively straightforward to measure and convert to a carbon equivalent. Though this does not cover all the scope 3 emission sources, the Low Carbon Pledge has taken a phased approach to introducing scope 3 into the reporting requirements of companies. In doing so, aiming to make companies more familiar with the carbon impacts throughout their value chains.

5.2 Scope 3 Emissions Insights

Scope 3 reporting was introduced on a voluntary basis in this years' data gathering exercise. A promising 29 of the 55 pledge companies have provided data on scope 3 emissions for 2019. Of these, 12 companies were also in a position to provide this data for a baseline year which has yielded insights on their progress over the past number of years. Again, the highest participation rate has been seen amongst Professional Services firms, where 12 companies have provided us with scope 3 data. The breakdown by sector is displayed in figure 15 below.

Figure 15: Scope 3 reporting by Sector



Business Travel Emissions

Carbon emissions linked to business travel accounted for 91% of the 29 pledge companies' scope 3 emissions in 2019. Pledge companies reported emissions of over 30,000 CO_2e as a result of business travel in 2019. Business travel emissions are primarily caused by air and car transport with air travel accounting for 73% of business travel emissions in 2019, or 66% of all scope 3 emissions reported. Business class flights taken by employees of pledge companies increased these companies' carbon footprint by almost 8,000 CO_2e in 2019. While economy class flights taken resulted in over 13,000 CO_2e in 2019.

Figure 16: Scope 3 Emissions Sources, 2019

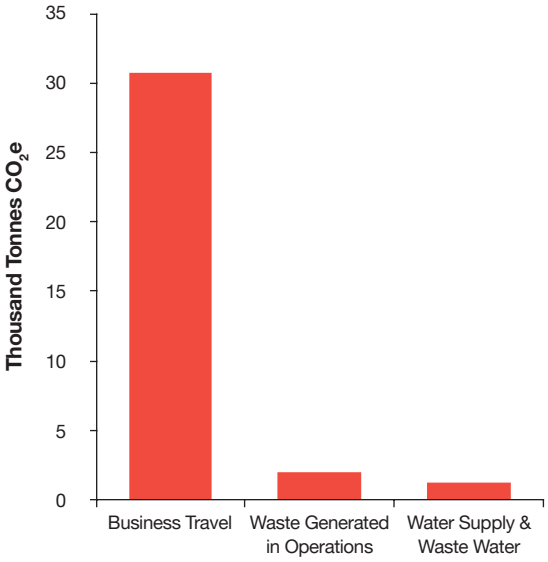
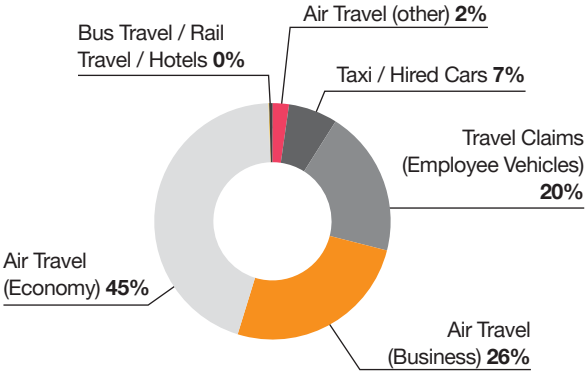
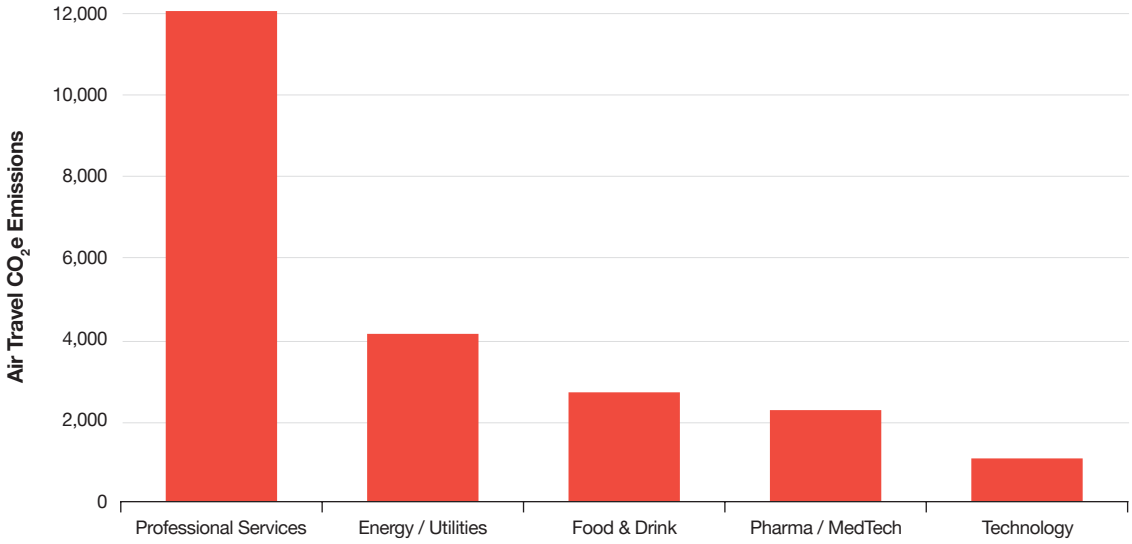


Figure 17: Business Travel Emissions Sources, 2019



As would be expected, Professional Services firms are the leading contributor to carbon emissions from air travel. For these firms, travelling internationally for business meetings has historically been commonplace. Moreover, many employees often fly business class, increasing the firm's carbon footprint further. COVID-19 has put an abrupt stop to business travel, with companies quickly turning to technology solutions, such as online video-conferencing. Many predict that the "new normal" following COVID-19 will see a considerable decrease in business travel, as companies adopt new work practices made possible due to the effectiveness and efficiency of these technical innovations.

Figure 18: Air Travel CO_2 Emissions amongst Pledge Companies, 2019



Energy and Utilities companies accounted for 80% of all car related emissions from employee travel claims in 2019. The distributed nature of their assets combined with ownership of networks requires significant employee car/van travel. Where travel is required to remote locations not serviced by public transport, companies look at fleet optimisation solutions in combination with low carbon vehicles. Companies can decrease emissions from travel by incentivising employees to car-pool or take public transport where possible. Many companies have employed creative initiatives to decrease their carbon emissions from business travel. For example, many companies have banned air travel for shorter journeys, encouraging the use of more carbon efficient travel for shorter business trips. Other companies only allow employees to purchase economy seats for air travel, and many attempt to choose the most carbon efficient airline for their business travel.

Emissions from Waste Generated by Operations

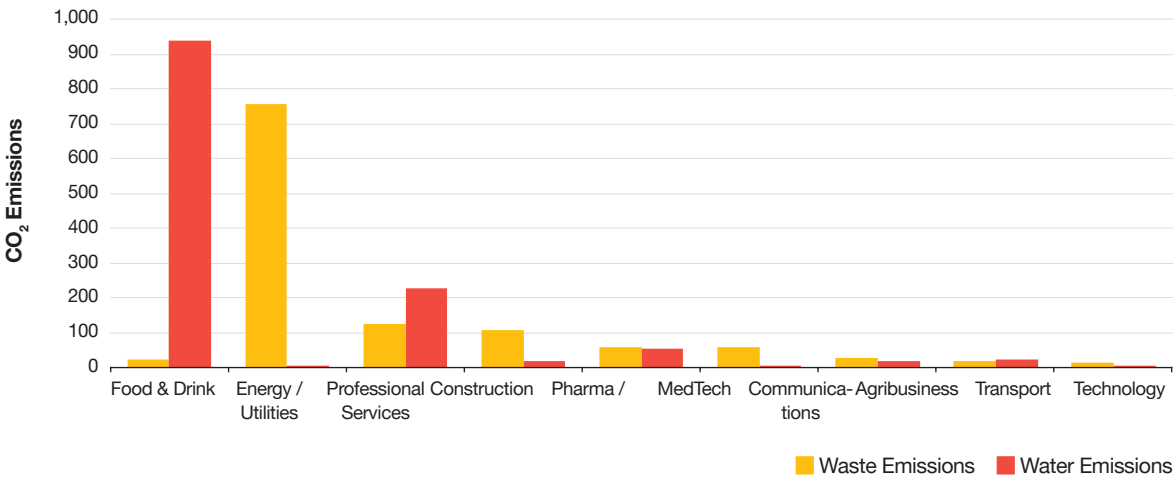
Waste generated by operations represents less than 6% of the reported scope 3 emissions. Companies in the Energy and Utilities sector were responsible for 64% of these emissions. As scope 1 and 2 emissions are reduced over time, these scope 3 emissions will become more significant. Circular economy solutions are found to be effective ways to address these emissions. Across industries, circular systems employ reuse, repair, refurbishment, remanufacturing and recycling to create a closed-loop system.[22] As resources are maintained at their highest utility and value for as long as possible, this minimises resource use, waste and carbon emissions. An example of the circular economy in action is through leasing (business) models. This product-as-a-service approach is a new way of thinking about ownership, as customers do not buy the product but instead pay per use. This allows for a unique and continued customer engagement (which does not end immediately with a once-off purchase), thus generating revenue. It also incentivises companies to use circular design principles and manufacture long-lasting products. As they maintain ownership and are responsible for repairs, they are likely to use high-quality materials, design for an extended lifetime (avoiding planned obsolescence) and adopt a modular design (meaning a product can be easily dismantled and for one part to be replaced as opposed to the entire product). Hence, the circular economy is an effective way to address the emissions caused by waste generated by operations.

22 Ellen MacArthur Foundation (2012) "Towards the Circular Economy: an economic and business rationale for an accelerated transition" www.ellenmacarthurfoundation.org/assets/downloads/publications/Ellen-MacArthur-Foundation-Towards-the-Circular-Economy-vol.1.pdf

Emissions from Water Supply and Waste Water

A large amount of energy is expended to supply, treat and use water. Companies who make a dedicated effort to reduce their water usage can make a real difference to their carbon footprint. Water supply and waste water accounted for 4% of scope 3 emissions reported by pledge companies in 2019. The breakdown by sector for waste linked to operations and water supply/waste are shown in figure 19 and the divergences are noteworthy. The Food and Drink sector was responsible for three quarters (74%) of total emissions linked to water supply and waste water, with Professional Services firms making up a significant 18%.

Figure 19: Carbon Emissions from Waste and Water Supply, by Sector, 2019

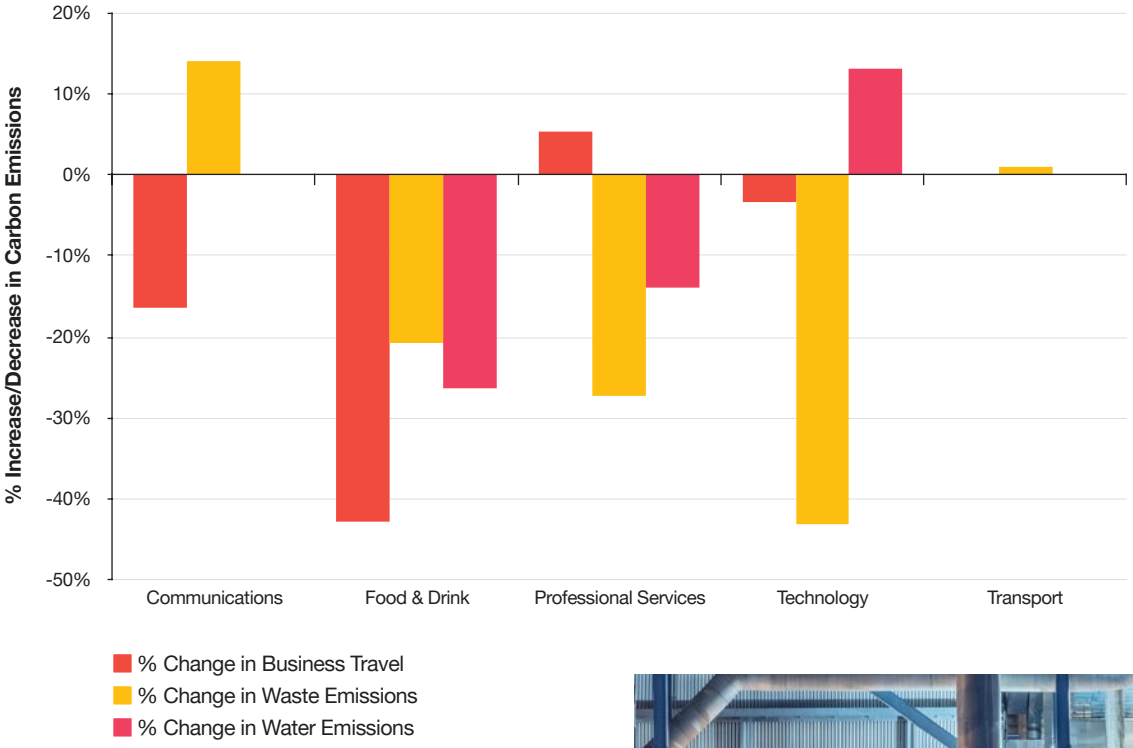


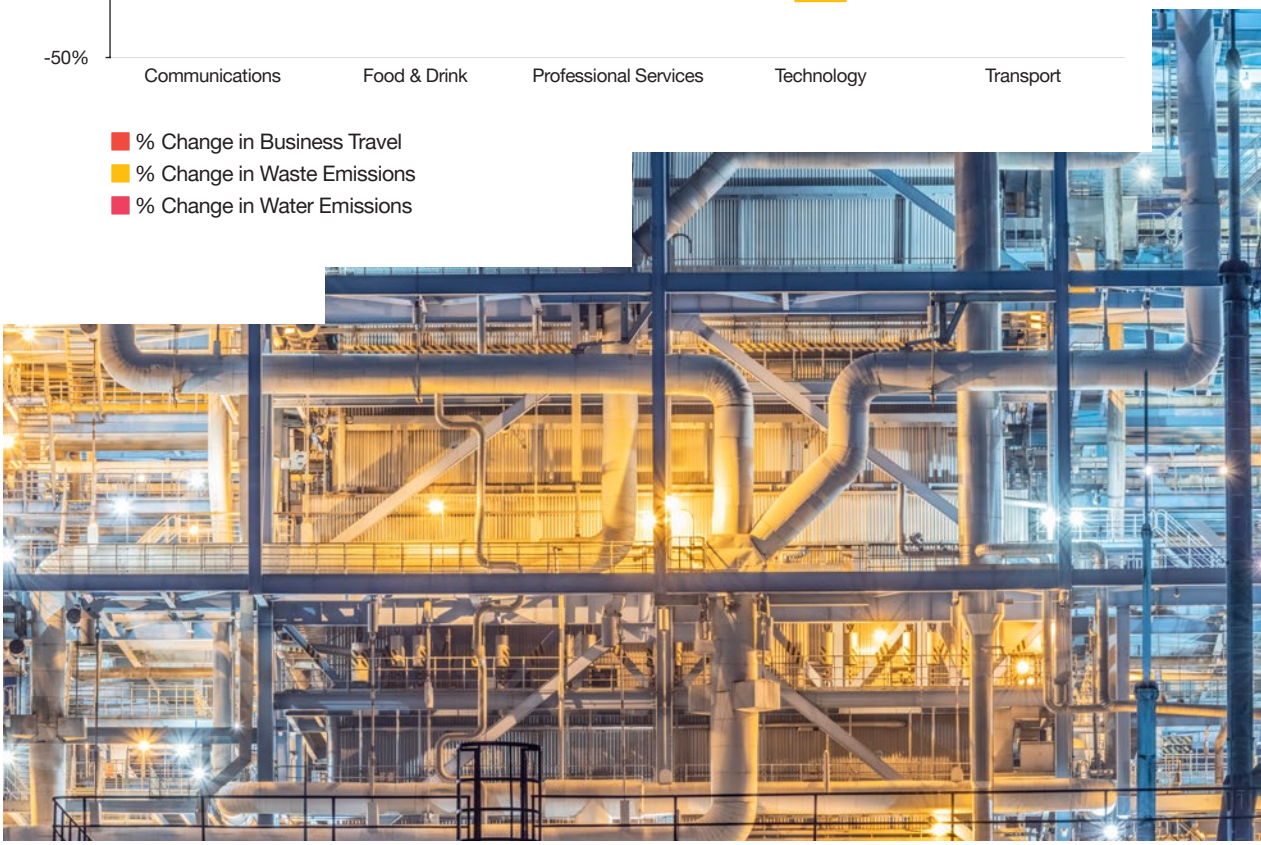
Scope 3 Emissions - Baseline versus 2019

12 of the 55 Low Carbon Pledge companies provided BITCI with scope 3 data for 2019 and a baseline year. The baseline year chosen for scope 3 emissions varied between 2007 and 2018. Of these 12 companies, 5 experienced a reduction in scope 3 emissions to 2019, with 7 companies experiencing an increase in absolute scope 3 emissions. The greatest progress over the past number of years has been seen in business travel, where 7 companies saw a decline in emissions. Emissions from water use has seen the least progress, with only 3 companies reporting a decline in emissions from their use of water over the past number of years.

Companies in the Food and Drink sector reported the greatest progress in reducing scope 3 emissions over the past number of years, achieving a reduction in emissions across all 3 categories. While companies in the Professional Services sector made good progress in reducing their emissions from waste produced and water consumption, business travel remains an issue for them. As previously mentioned, many anticipate that COVID-19 will result in a behavioural shift amongst Professional Services firms resulting in decreased business travel.

Figure 20: Scope 3 Carbon Emissions, % Change, Baseline versus 2019, by Sector

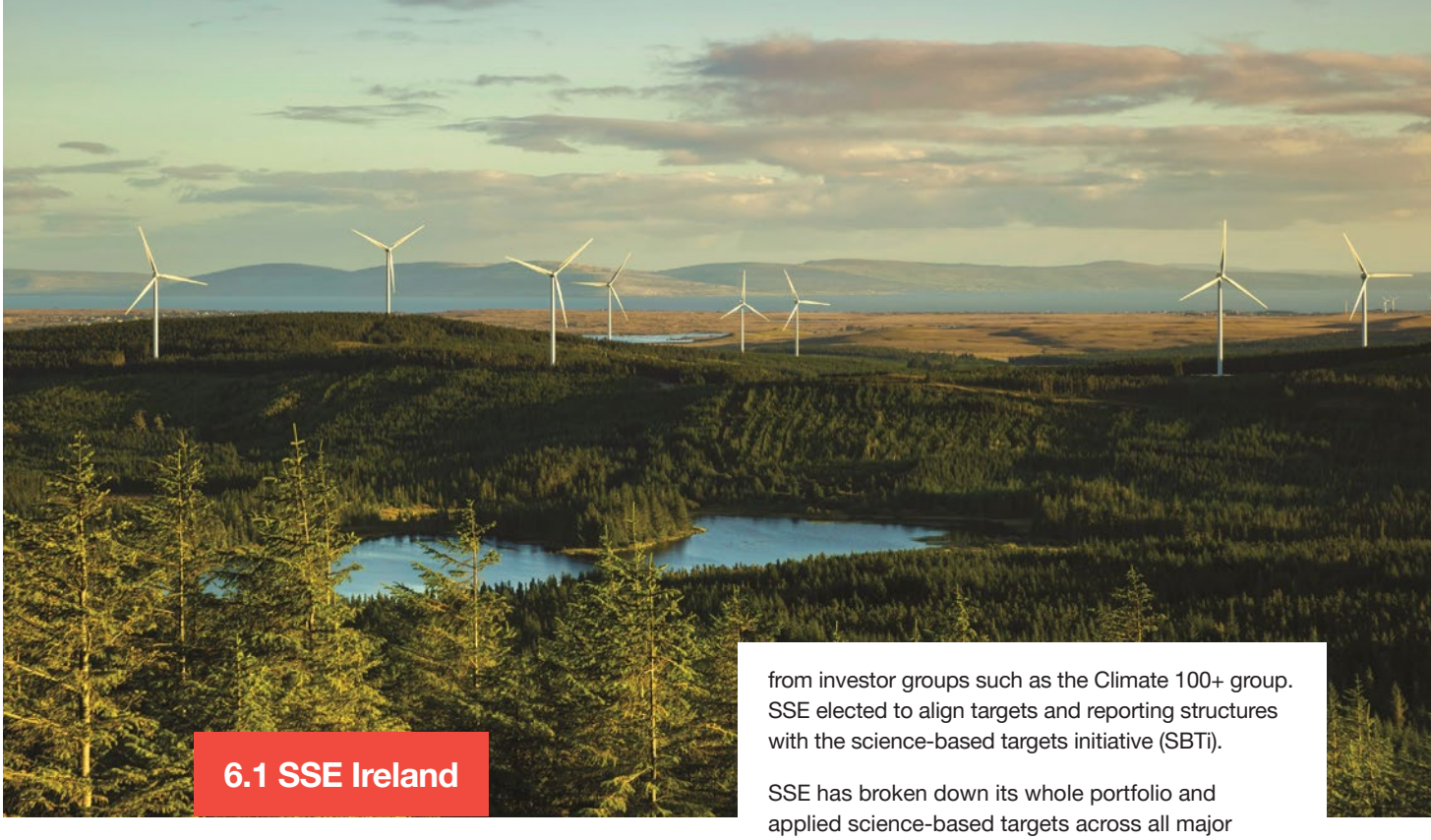




6

Case Study Analysis

The case study analysis provides a short overview of how four companies (SSE Ireland, Arup, Musgrave and RTÉ) from within the 58 Low Carbon Pledge Signatory Companies are seeking to enhance the sustainability and decarbonisation of their business operations. The case studies seek to highlight some of the key actions the selected companies are taking in order to drive their emissions reductions efforts and inspire more Irish companies to join them on a path towards enhanced sustainability.



6.1 SSE Ireland

SSE Ireland has a strong heritage of renewable electricity production and a vision to be a leading energy company in a net-zero carbon world. Being both a producer and distributor of electricity has resulted in SSE developing deep capability in a diverse range of low carbon solutions, ranging from onshore and offshore wind farms to smart electric car charging infrastructure. While SSE's low carbon heritage has historically shaped its strategy, increasing customer, investor and policy focus on the low carbon agenda encouraged SSE to see if it could further increase its already ambitious sustainability strategy across the UK and Ireland where it operates.

In order to frame its strategy, SSE used multiple lenses. One that is of particular interest is the Task Force on Climate-related Financial Disclosures (TCFD). This standard focuses on scenario analysis and is a useful tool to review climate-related risks and opportunities. The objective is to present an analysis of the potential financial impact of climate-related effects on its business per climate scenario.

In 2019, SSE reviewed its corporate strategy and set four new goals aligned with the UN's Sustainable Development Goals (SDGs): (1) Cut carbon intensity by 50%; (2) Treble renewable energy output; (3) Help accommodate adoption of 10 million electric vehicles; and (4) Champion fair tax and a real living wage all by 2030. These four goals underpin SSE's strategic focus on long-term, low-carbon and sustainable assets, demonstrating a commitment to delivering SSE's strategy in a way that creates value for shareholders and for society. The targets set within these goals are also linked to the executive remuneration. In order to measure progress against the strategy, it was necessary to define a reporting structure that met internal objectives and also aligned with expectations from investor groups such as the Climate 100+ group. SSE elected to align targets and reporting structures with the science-based targets initiative (SBTi).

SSE has broken down its whole portfolio and applied science-based targets across all major segments and developed a full suite of initiatives with associated verification criteria. Additionally, SSE requires data to support its business choices, and science-based targets can help in setting concrete and inspiring targets to challenge business units. As this data is seen as critical to the organisation, SSE seeks external validation for key data sets (PwC provides assurance on carbon intensity, scope 1, 2 and 3 and total emissions data, for example).

SSE recognises the importance of having longer term targets in place, even as the precise path to complete decarbonisation for both the country and SSE is yet to be fully determined. There are multiple pathways in the UK and Ireland through which SSE can decarbonise thermal generation or build the targeted level of renewables output. What is critical is that the business has certainty as to what the desired endpoint is, which allows management to make better investment decisions en route to achieving these goals.

SSE has a number of distinct businesses operating in Ireland and each has its own specific decarbonisation objectives. Here are some key initiatives that together will allow SSE to meet its overarching science-based targets.

Renewable Technology

SSE's renewable energy business unit, SSE Renewables, has the largest portfolio of onshore wind farms operating in Ireland and is developing new wind energy projects, both onshore and now offshore, to power the low carbon future for the next generation. Delivery of its 2.5+GW development pipeline of new renewable energy projects over the coming years will contribute significantly to meeting Ireland's overall ambition to reach 70% renewable energy generation by 2030, as set out in the *2019 Climate Action Plan.*

Flexible Generation

SSE recognises the need for flexible gas-fired generation in the transition to a net-zero emissions future, complementing renewable production and maintaining security of supply. SSE Thermal currently operates one of Ireland's most efficient gas-fired power stations at Great Island, Co. Wexford, which provides vital flexibility to the electricity system. The business is now exploring opportunities in carbon capture, usage and storage (CCUS) and hydrogen technology, which have the potential to decarbonise this conventional energy generation.

Green Energy Supply

SSE is a large energy supplier on the island of Ireland, providing electricity, natural gas and energy related services to both residential and business customers. Where business customers wish to reduce scope 2 emissions, SSE can supply 100% green energy. Moving beyond simply supplying energy sourced from renewables, the organisation works with its business customers to achieve corporate sustainability objectives through a number of products. These range from facilitating Corporate PPA's for I&C customers, to supporting the implementation of energy efficiency measures, such as LED lighting upgrades, to investing in renewable generation through onsite solar installations. SSE has financially supported a wide variety of these energy efficiency projects for customers since 2014 and has delivered over 1,300 GWh of primary energy savings on a cumulative basis.

While the company is understandably focused on responding to the COVID-19 crisis, SSE is staying true to its carbon reduction strategy which is fundamental to its purpose and vision.

6.2 RTÉ

RTÉ is committed to the highest level of energy reduction and sustainability. As Ireland's public service broadcaster, RTÉ is subject to the *National Energy Efficiency Action Plan 2009 – 2020,* which looks for the public sector to "lead by example through strong committed action". RTÉ takes this leadership role by progressing the sustainability agenda on 3 distinct fronts: company, supplier base, and citizen. Due to the societal significance of climate change, RTÉ's sustainability strategy has given prominence to this issue in its programming and editorial voice.

RTÉ demonstrates its commitment to the highest level of energy reduction and sustainability in the management of its existing infrastructure and in the development of new infrastructure. In order to signpost this clearly, RTÉ has publicly committed to targeting a reduction in carbon emissions by 50% by 2030. Since signing the carbon pledge, the broadcaster has placed its carbon emissions as a key strategic objective in its day-to-day operations. The first step on this journey was to implement accurate energy usage monitoring across RTÉ infrastructure portfolio, identifying highly emitting processes and providing data to continually track progress.

RTÉ has worked in partnership with SEAI for many years to implement best practice standards in energy monitoring and innovations in energy reduction and is committed to exceeding the targets set out by the National Energy Efficiency Action Plan (NEEAP) - to reduce energy consumption by 33% by 2020. To further enhance better energy management practices and be an exemplar organisation in the management of energy, RTÉ is currently working towards ISO50001 certification - an energy management model of continual improvement, which ensures that energy management is integrated into our overall operations.

Particular attention to energy reduction is given during procurement of new network assets as this infrastructure can 'lock in' lower energy usage for significant periods. Buildings also represent a significant portion of the corporate carbon footprint and a range of initiatives are underway to reduce this. 'Low hanging fruit', such as installing LED lighting solutions, have been implemented and have delivered significant savings to date. Other initiatives include the installation of solar panels on one of the buildings at RTÉ Donnybrook which to date has generated 71 MWh of renewable electricity; the equivalent of powering 54 Late Late Shows (production lighting and air conditioning requirements).

Recent reforms of the Film and Tax Credit Section 481 now includes a requirement for all qualifying productions to have sustainable filmmaking solutions on set. In order to drive continual improvements in environmental performance, RTÉ has established a Green Broadcaster Advisory Group – a configuration of colleagues and external agencies (such as the EPA and SEAI) and external partners (such as Screen Producers Ireland). This helps to plan to the highest standards possible, and leverage external support or ratification where appropriate. Areas of focus include; waste management/prevention; energy consumption and carbon reduction, water conservation, biodiversity and pollution prevention.

RTÉ has also taken a leadership role in collaborating with relevant external stakeholders and peer broadcasters (such as TG4 and Virgin Media) to adopt the standards of *Project Albert.* Originally in operation in the UK, Albert is a collaborative BAFTA independent production and broadcaster-backed bespoke project that provides the film and TV industries with the necessary expertise and opportunities to take action on environmental sustainability. The project aim is to ensure screen content is made in ways that benefits individuals, industry organisations and the planet. Its core objectives are to reduce the environmental impact of the production process, and to enable industry organisations to realise the environmental aspect of their stated vision and its implication for audience engagement. As part of this initiative RTÉ has adopted the Albert carbon calculator and is currently identifying productions which can be measured and analysed with a view to reducing their environmental impact.

Since taking the carbon pledge, RTÉ is actively planning how it will meet its 2030 target to improve energy efficiency by 50% and deliver a 30% reduction in CO_2.

6.3 Arup

For the past decade, Arup has been actively engaged with the wider sustainability agenda. In 2013, it published its first annual sustainability report and began working with clients on the *100 Resilient Cities* initiative, helping to build more sustainable cities and communities. In 2015, Arup enhanced its commitment to reducing its greenhouse gas (GHG) emissions and addressing climate change by becoming a signatory of the *Paris Pledge for Action.*

As societal awareness increased and client demand for climate services grew, Arup committed to formalising its sustainability objectives in a way that clearly demonstrated a significant carbon emissions reduction ambition. In early 2019, Arup made the decision to adopt science-based targets across the organisation. Since then, the company has set a target of a 30% reduction in its carbon emissions by 2025, with a target of net-zero emissions by 2030, which was verified by sciencebasedtargets.org in March 2020.

The first step of the journey involved data collection to determine the baseline of Arup's emissions from current operations, providing insights into the principle emissions sources. Collecting data accurately, consistently and efficiently will be a cornerstone of reducing Arup's carbon emissions. Arup's digital teams started to analyse different regional data sources and how this could be stored

in one centralised system to get a continuous picture of the company's carbon emissions.

Once Arup better understood its emissions baseline, and the sources of its emissions, the next phase was to determine future targets for emissions reduction. Rather than collectively allocate all targets and actions to every region, the responsibility was given to the regions individually. Each geography defined a set of Region Determined Contributions (RDCs) which aggregate up to the overall Arup group target. This is modelled on the EU concept of NDCs where regional targets aggregate up to an EU level. The RDC model offers the advantage that each region can choose its own path based on the conditions in that specific market. This is found to be a more effective approach to cutting carbon emissions across global organisations, as not all jurisdictions move at the same pace in relation to the adoption of low carbon technologies.

Next, Arup formed a Steering Group which was tasked with defining, coordinating and reporting all activities related to achieving the agreed targets. This approach enabled sharing of 'lessons learned' between offices. To implement change, working groups were set up in each region to operate at a much more granular level, identifying the areas of focus most relevant to their own region and defining their own sustainability initiatives.

For example, Arup in Ireland encourages staff to use sustainable modes of transport through an ongoing Mobility Management Plan (MMP). Regular staff surveys are used to gather the underlying data. In 2010, when the first travel survey was issued, the results showed that 27% of staff drove to work each day and 13% cycled. Fast forward to 2019 when only 7% of staff drive to work and 30% cycle. This has been supported by a range of initiatives, e.g. upgrading changing rooms and increasing the capacity of bike storage areas.

While the majority of programmes are conceived and driven regionally, a number of initiatives are also implemented globally. One such example relates to putting an internal price on carbon for business air travel, which requires an additional expense of $40/tonne CO_2 to compensate for the carbon associated with the flight. This money is collected into a central carbon fund which will be used to offset the carbon, with any surplus used to fund specific projects that accelerate efforts to decarbonise, by Arup and others.

6.4 Musgrave

As Ireland's leading food retailer, wholesale and foodservice company, Musgrave is well placed to support positive change in businesses, local communities and the environment. Sustainability has long been front and centre of Musgrave's operations, becoming one of the first companies globally to embed the *UN Sustainable Development Goals* back in 2015. It has become a leader in Ireland in environmentally friendly operations, and last year was appointed a *Sustainable Development Goals Champion* by the Irish government.

This focus on sustainability has been driven by the company's board and being embedded in the culture of the organisation. It has become a key aspect of Musgrave's strategic long-term thinking and ingrained in the mindset and behaviours at all levels of its workforce. Musgrave has come to view the commercial, regulatory and wider societal trends through a lens of sustainability, with potential risks and consequences associated with a failure to make operations more environmentally friendly. The organisation, therefore, has come to view sustainability as a means through which to future-proof the business.

In December 2017, Musgrave launched its sustainability strategy, *Taking Care of Our World.* The strategy includes 27 commitments, including the reduction of the company's carbon footprint

across its operations and retail brands. At a high level, this new sustainability agenda focuses on reducing the company's carbon emissions; buildings; transportation; plastic packaging; and food waste. Acknowledging the importance of clarity and transparency, Musgrave sought to use science-based targets to frame their sustainability objectives and have committed to reducing their carbon footprint in Ireland by 70% by 2025 and to achieving net-zero emissions by 2050.

Musgrave acknowledges such ambitious decarbonisation targets will be challenging. In some instances, the market has not yet delivered the solutions required to meet these targets. Examples of this include affordable low carbon heat and transport solutions. Regardless, Musgrave senior management are confident that by setting a 30-year goal they will succeed by aligning people's everyday thinking and positively influence decision making today such that all activities contribute ultimately toward achieving net-zero by 2050.

The first step on the science-based targets journey was gathering the required data from across the organisation. Reporting was put in place and policies implemented to drive out greater awareness of carbon when making investment decisions. An example of this is the requirement for a lifecycle carbon reduction case for any capex approval of greater than €1m. When looking at replacing a large-scale refrigeration solution it is necessary to consider carbon emissions over the lifetime of the system which favours lower carbon solutions.

Musgrave realised that transport represented a very significant portion of total carbon emissions. This encompasses significant emissions related to getting to and from work combined with the footprint associated with more than 250 trucks servicing the distribution operation. A baseline assessment was performed to document business-related road and air-miles related emissions. Measures to date have resulted in a reduction in fleet emissions of over 55,000 tonnes annually, however, it was felt that more could be done. After quantifying the emissions of inbound and outbound transport, Musgrave has identified a series of initiatives to reduce its carbon footprint. Initiatives, such as better route planning, more efficient inbound and outbound supplier utilisation and driver training around the use of technology, will further minimise Musgrave's carbon footprint. Longer term consideration is being given to the potential for electric vehicles for last mile delivery within city areas, as well as considering opportunities to use HGVs fuelled by biogas/hydrogen.

Musgrave has set a target of operating all its facilities with 100% green electricity, while sending zero recoverable waste to landfill. This involves working through the physical estate and sourcing renewable electricity from their providers while also seeking means to reduce overall energy consumption. Since 2015, Musgrave has installed over 50,000 LED light fittings in their facilities and has plans to invest approximately €3 million in solar panels for SuperValu stores.

Musgrave has an ambition to help bring its sustainability experience to the communities within which it operates. Musgrave works with its retail partners to help them reduce their carbon footprint and future proof their business models by avoiding 'locking in' costly carbon intensive processes. This has included initiatives such as energy reduction as a key focus during store revamps, including retrofitting of energy-efficient refrigeration, lightning and HVAC. Musgrave has also run education programmes for its retail partners highlighting the significant savings to be achieved by focusing on behaviour change and energy demand-side management.

To reduce the use of plastics, Musgrave has an objective to make all its own brand, fresh produce and in-store packaging reusable, recyclable, or compostable by 2025. Packaging initiatives, such as reducing and removing plastic packaging and substituting with sustainable alternatives, have seen huge progress to date. In recent years, Musgrave has supplied SuperValu stores with compostable produce bags for loose fruit and vegetables, removing 2.7 million single-use plastic bags from its own supply chain.

Musgrave has found that their focus on sustainability has resonated very positively with consumers who are continually looking for businesses to evolve such that they minimise their environmental impact.

6.5 Sectoral Insights on the Challenges presented by COVID-19

COVID-19 is a global crisis that knows no borders, has impacted billions of lives, battered the global economy and left no company untouched. It has shown how systemic risks can have exponential impacts, and how unprepared and unresilient our systems can be even for a crisis we know will happen. This all sounds very familiar to those that have long been championing urgent action to the looming global crisis ahead - climate change.

COVID-19 has also shown us that to tackle a global crisis, governments and companies need to come together for the public good. Leaders have to take extraordinary actions for the greater cause. We have seen trust in science increase, and we can see - for example through the creation of testing kits, a vaccine, or contact tracing apps - how crucial it is to innovate at scale and speed to find new solutions.

As we navigate through and ultimately emerge into a post-pandemic world, how we reshape will have key implications for our ability to address climate change this decade. In this section we have asked our sector leads to outline how COVID-19 may impact sustainability initiatives and ambition within their sector.

Agribusiness

PwC Sector Lead: Siobhán Collier

While the agrifood sector contributes over €24 billion per year to the Irish economy, this sector is the largest contributor to Ireland's overall greenhouse gas emissions, accounting for over 30% of the total. Ireland's agribusiness continues to come under pressure to adopt environmentally friendly models that simultaneously reduce carbon emissions whilst feeding a growing population. The *European Green Deal* will require member states to ensure that national strategic plans for agriculture reflect its ambitions of being "climate neutral" by 2050.

A key component of the *European Green Deal* is the Farm to Fork Strategy. This approach aims to reduce carbon emissions through implementing measures that reduce the environmental impact of food production, processing and retail activities by taking action on transport, storage, packaging and waste. Irish farmers are facing significant challenges in trying to meet the obligations of the sustainability strategy while ensuring their output and incomes are not negatively impacted.

Impact of COVID-19

COVID-19 is causing serious disruption for the agriculture and food sector across Ireland. As the largest beef exporter in the EU, COVID-19 related market closures and disturbances are causing unprecedented disruption. There is a risk that supply disruptions may exacerbate the existing consumer led shift to plant based alternatives. The wider challenges with the adoption of emissions reduction across the agricultural sector remain.

Food and Drink

PwC Sector Lead: Owen McFeely

The manufacturing of food and drink is Ireland's largest domestic exporting sector, accounting for over a quarter of employment of Irish-owned exporting firms. The Irish food and drink sector alone accounts for approximately 38% of total indigenous exports.

The food and drink sector face challenges to achieve the 2030 targets set out in the government's Climate Action Plan. This includes the need for all plastic packaging to be recyclable or reusable, a 50% reduction in food waste and the ban of specific single-use plastic convenience items in line with Single Use Plastics Directive. The implementation of the plan, and the full transition to a decarbonised economy, will have major implications for food and drink players in Ireland. This requires businesses to adapt their operations in response to the new regulatory environment, ways of working and consumer preferences.

Impact of COVID-19

The spread of COVID-19 has created considerable challenges for the Irish food and drink sector. There has been a significant strain on business' financials and operations due to movement restrictions and temporary business closures.

While food and drink products have continued to be delivered to consumers through retail outlets, demand has ceased for the majority of food service and hospitality businesses. To manage the crisis, food and drink companies are concentrating on operational issues, such as production processes, employee safety and changing consumption patterns.

While companies remain committed to their longer term sustainability commitments, there will be many competing forces in the short to medium-term. For example, the drive to reduce plastic packaging may be challenged by the need to avoid contamination as food transitions from source to the home. It will be important for companies in this sector to maintain focus on the longer term societal expectations while also dealing with the near-term crisis.

Retail

PwC Sector Lead: Owen McFeely

Retail represents one of the largest sectors in Ireland with a total contribution of €30 billion in sales to the economy, €7 billion to the Exchequer, and directly employs 280,000 people across the country.

Consumers are becoming more environmentally conscious when making purchasing decisions, with increasing interests in product sources, production processes and the brands commitment to sustainability. The 2019 PwC Irish Retail Consumer Report illustrates this sentiment with 52% of respondents avoiding the use of plastic where possible and 41% of Irish consumers prepared to pay a premium for sustainable products.

The retail sector is starting to develop more sustainable business models, with an increased focus on reducing carbon emissions across their operations. From a supply chain perspective, market players are continuing to show their commitment to sustainability through initiatives, such as the usage of electrical vehicles in their fleets and improved distribution planning to enhance efficiency. The shift can also be seen in stores, with businesses reconfiguring layout in order to reduce CO_2, providing on-site recycling facilities, and setting up extensive plastic reduction and food wastage reduction initiatives.

Impact of COVID-19

The retail sector has been one of the sectors most severely impacted by COVID-19 and is facing unprecedented challenges. Retailers are focusing on operational challenges and adapting to the changing environment, such as social distancing in stores, increased online shopping volumes and the likelihood of more financially constrained consumers. Where sustainability initiatives reduce cost, it is anticipated that progress will continue, however, where changes and programmes require significant capital investment there is risk of delay. In many instances this crisis will see an acceleration into online retailing, thus accelerating disruptions that were already in train. The challenge for this sector will be to balance the appropriate response to the COVID-19 crisis, whilst not losing sight of the importance of transforming business models to reflect evolving consumer expectations in the areas of decarbonisation and sustainability.

Pharma/Med Tech

PwC Sector Lead: Jean Delaney

According to 2019 data from the Central Statistics Office (CSO), Ireland is the 7th largest exporter of medicinal and pharmaceutical products in the world. The sector is worth €39 billion annually in exports, accounting for 50% of all Irish exports. Ireland has long been of benefit to non-EU pharma companies, offering access to Europe and other markets tariff-free.

As Irish pharmaceutical manufacturers and their clients' supply chains become increasingly entwined, they find themselves under increased pressure to reduce their carbon footprint. Sustainable practices surrounding responsible water management, use of sustainable packaging, and reductions in greenhouse gas emissions and supply chain environmental footprint have become more common in how big pharma companies do business in Ireland.

Progress among big pharma companies has been made in recent years. According to the 2020 SEAI report, the PharmChem sector in Ireland saw a 15% improvement in energy efficiency between 2017 and 2018 among big pharma companies, such as Pfizer, Astellas Ireland and GSK. The SEAI cited investment in energy efficiency as the underlying factor, even with output increasing between these years.

Impact of COVID-19

Though pharma companies may be more resilient to this crisis than other businesses, they are certainly not immune to challenges arising from COVID-19. Historically, during periods of economic downturn, funding environments for biotechnology companies become challenging and a prolonged recession may limit the ability of early stage companies to progress their pipelines.

Locally, the impact of COVID-19 on sustainable energy initiatives will primarily be felt in two ways. First, a delay in the conversion of older sites to a more energy efficient way of operation, due to the ongoing restrictions on activity (in particular in the construction industry). Second, potential postponement of energy investments as companies adopt a "wait and see" approach on economic performance prior to making any investment decisions.

Technology

PwC Sector Lead: Amy Ball

Technology companies are increasingly working to improve their power usage effectiveness to minimise their carbon footprint, particularly through improving the technology used in the data centres, as well as using enhanced air-cooling solutions. Google has started using carbon-intelligent computing in its data centres, by shifting the timing of intensive data centre computing to align with times when renewable energy sources (such as wind and solar) are most plentiful. The International Telecommunication Union (ITU) has called for the ICT industry as a whole to reduce its greenhouse gas emissions by 45% from 2020 to 2030. Due to the high number of tech companies in Ireland, data centres have become prevalent with more set to open over the next 10 years. Data centres are large energy users and EirGrid estimates that they will consume 29% of Ireland's electricity by 2028, with a strong push from the sector for this to be sourced from renewable production. Several technology companies have supported windfarm development by entering into long-term power purchase agreements with developers. For example, earlier this year Amazon Web Services announced backing for a 91.2MW wind farm in Donegal and a 23.2MW wind farm in Cork.

Impact of COVID-19

The shift to more remote working, and the increased digitisation of services, will further increase the need for data centre capacity both locally and globally. We have also seen that during the first two months of the crisis, electricity demand fell less in Ireland than in other European countries due to the continued operation of the data centres hosted here. This sector has significant ambitions to fully decarbonise their substantial energy demand and this will require an accelerated build out of renewable generation. Due to their ability to operate effectively with staff working remotely, it is anticipated that only 20% of tech workers will return to offices in the near term. This movement to increased home working may impact demand for office space in the medium-term. Overall it is anticipated that this sector will continue to prioritise sustainability as a critical business issue.

Energy and Utilities

PwC Sector Lead: Kim McClenaghan

Investment cycles in this industry are long and the decarbonisation agenda has been shaping policy, regulation and investment in this sector for many years. Most energy companies are undergoing profound changes to better align with a zero-carbon future. As we build out our wind and solar electricity generation capacity, and switch from coal and peat burning to gas in our thermal power plants, we are making great strides to achieve our near-term targets in this sector. To meet our more challenging 2030 and 2050 targets will require strong policy signals and significant investment. Our national water utility requires significant capital in order to bring our legacy water and wastewater infrastructure up to required European environmental standards.

Impact of COVID-19

COVID-19 has impacted this sector in a number of ways. Demand has fallen in line with reduced business activity and increasing bad debt is creating cash flow issues for many energy and utility companies. Companies will continue to focus on their longer term investment plans which are strongly linked to the sustainability agenda. The timing of these investments will be influenced by policy signals, such as carbon price commitments. Ireland has recently signed up to a call, from the majority of EU countries, to put the *European Green Deal* at the centre of a post COVID-19 recovery. The ministers urge Europe to remember the challenges of climate change when designing long-term strategies for a resilient recovery. Judicious allocation of funds to appropriate energy and water infrastructure programmes will lead to job creation while also enabling a cost-effective transition to a zero-carbon energy system and support delivery of the green deal in Ireland.

Transport

PwC Sector Lead: Yvonne Thompson

Transport represents 20% of our national carbon emissions and accounts for 40% of our national energy demand. While we have made good progress in achieving our renewable electricity targets, very little progress has been made in cutting the carbon emissions associated with transport primarily driven by our dependence in this sector on oil. The Climate Action Plan established a target to reduce transport sectoral emissions by 4 $MtCO_2e$ compared to 2017 levels by 2030 and has identified electrification as the principal tool to achieve this target. However, when we consider that 55% of energy usage is from light transport (e.g. private cars, vans) and 45% is from heavy transport (e.g. trucks, buses, taxis, aviation) it is clear that electrification alone will not suffice. Companies looking to address their HGV emissions are looking at solutions such as CNG/biogas in the short to medium-term with hydrogen leading as the probable longer term solution to zero-carbon transport for this vehicle type.

Impact of COVID-19

Since travel restrictions have been enforced, public transport numbers in Ireland have decreased by an estimated 75%. This will lead to a significant decrease in transport-related emissions in 2020. While traffic volumes are anticipated to climb thereafter, the move to greater levels of home working is provoking reconsideration of potential passenger/road users in the medium-term. The aviation industry has been particularly impacted by this crisis and while sustained progress has been made to deploy new aircraft with more efficient engines, the short to medium-term airline focus will inevitably prioritise post-crisis recovery. Longer term, in addition to continued development of conventional engine technology, the focus will be on biofuels/synthetic fuels for longer distance travel, with electrification solutions being considered for shorter flights. The decarbonisation of the HGV fleet requires availability of models, combined with appropriate refueling infrastructure. Companies will require evidence that the alternative refuelling networks are being implemented before deciding to replace their fleets with zero carbon alternatives.

7

Conclusions and Recommendations

The second Low Carbon Report details the progress made by the pledge companies in reducing their carbon emissions and brings into focus the important role Irish businesses play in transitioning the country to a low carbon economy. To meet our increasingly ambitious national targets, it is important that we move to considering our full carbon footprint.

The Pledge signatories continue to make significant progress in reducing their carbon emissions. The 45 original Low Carbon Pledge companies have now reduced their absolute emissions by 18% between 2018 and 2019, and have now already achieved a 52% reduction from their baseline year (absolute emissions). The average emissions reduction intensity per company has increased from 36% to 41% from 2018 to 2019.

A number of insights and observations have been collated while writing this report.

Raising Ambition and Increasing Reach

Last year we commended the good work done by the Pledge group but made a call to increase the number of participating companies and recommended extending the scope of the decarbonisation commitment. Thirteen more companies have joined, 10 of which provided data for this report. While 2020 will be long remembered, it is critical that, as companies chart pathways to recovery, they position their businesses to thrive in a low carbon future. With an ever increasing awareness of the risks of climate change, and the importance of accelerating abatement activity, it is critical that the Low Carbon Pledge signatory group continues to grow in number.

Science-Based Targets

The transition to a low-carbon economy is underway with a wide range of sectors in every market looking to set reduction targets. Science-based targets in particular (i.e. targets in line with the goals of the Paris Agreement) are increasingly being adopted. They create transparent targets that reference the total carbon footprint of the enterprise which gives investors and customers clarity as to the company's decarbonisation ambition.

We applaud the move to raise the ambition of the Low Carbon Pledge through the incorporation of aspects of scope 3 into the reporting process. Three elements were reported by 29 companies: business travel, waste generated by the company and water consumption. The case studies illustrate how businesses have embarked on their journeys to define science-based targets and they have shared practical examples of supporting initiatives which are helping achieve these targets. Once again, it will be important to raise the ambition and reach of scope 3 reporting amongst the Pledge group. We would recommend that all companies adopt carbon reduction targets based on the latest climate science.

Transparency and Credibility

Tracking carbon reduction efforts, and ensuring the integrity of companies' self-reported emissions data will be critical to safeguarding the robustness of the Low Carbon Pledge. Significant progress over the last year has been made in this regard with 53% of Low Carbon Pledge companies getting external verification of their 2019 carbon emissions data.

The next step is to increase the level of rigour of the data validation undertaken. It is becoming commonplace to link executive remuneration with metrics, including decarbonisation targets, clearly making it important that stakeholders have confidence in the data. With further guidelines on reporting carbon emissions released by the European Commission in June 2019, as well as the Task Force on Climate-related Financial Disclosures (TCFD) recommendations gaining momentum, emissions data verification is an area that companies will continue to see increased focus on going forward.

Incorporate Learnings from COVID-19 into Climate Action

As companies look to rebuild, it will be important to future proof business models and, where possible, take learnings from our experiences of dealing with COVID-19.

Re-setting corporate resilience and upping the ante on ESG: The harsh lessons from this crisis are likely to accelerate efforts, in a post-pandemic world, of markets and boards to price in systemic risks (in particular climate risks: physical and transition risks). This will include accelerating climate risk governance and disclosure, and the prominence of ESG more widely.

Harnessing business model disruptions: COVID-19 has rapidly disrupted business norms, and created new preferences and practices that if sustained, could also lead to direct emissions reductions. These could include remote teleworking and increased digital social connecting, nearshoring, and regionalising and nationalising supply chains along with 3D printing, which would usher in a new mantra of "make where you sell". Across the board, these could deliver sustained reductions in transportation demand and associated emissions. In addition, the accelerating automation of production lines that the retail sector brought about to enable business continuity during this crisis, will also deliver emissions reductions.

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