



Pledge to Net Zero Setting a Science-Based Target

PRESENTER NAME:

PJ Ryan - ACEI Sustainability Committee Convenor

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Agenda

1. Recap
2. Register Commitment – Make the Pledge
3. Set Inventory Boundary
4. Develop a Baseline – Scope 1
5. Develop a Baseline – Scope 2
6. Develop a Baseline – Scope 3
7. Setting a Target
8. Q&A

Global greenhouse gas emissions and warming scenarios



- Each pathway comes with uncertainty, marked by the shading from low to high emissions under each scenario.
- Warming refers to the expected global temperature rise by 2100, relative to pre-industrial temperatures.

Annual global greenhouse gas emissions
in gigatonnes of carbon dioxide-equivalents

150 Gt

100 Gt

50 Gt

Greenhouse gas emissions
up to the present

0

1990 2000 2010 2020 2030 2040 2050 2060 2070 2080 2090 2100

No climate policies

4.1 – 4.8 °C

→ expected emissions in a baseline scenario if countries had not implemented climate reduction policies.

Current policies

2.7 – 3.1 °C

→ emissions with current climate policies in place result in warming of 2.7 to 3.1°C by 2100.

Pledges & targets (2.4 °C)

→ emissions if all countries delivered on reduction pledges result in warming of 2.4°C by 2100.

2°C pathways

1.5°C pathways

Data source: Climate Action Tracker (based on national policies and pledges as of May 2021).
OurWorldinData.org – Research and data to make progress against the world's largest problems.

Last updated: July 2021.
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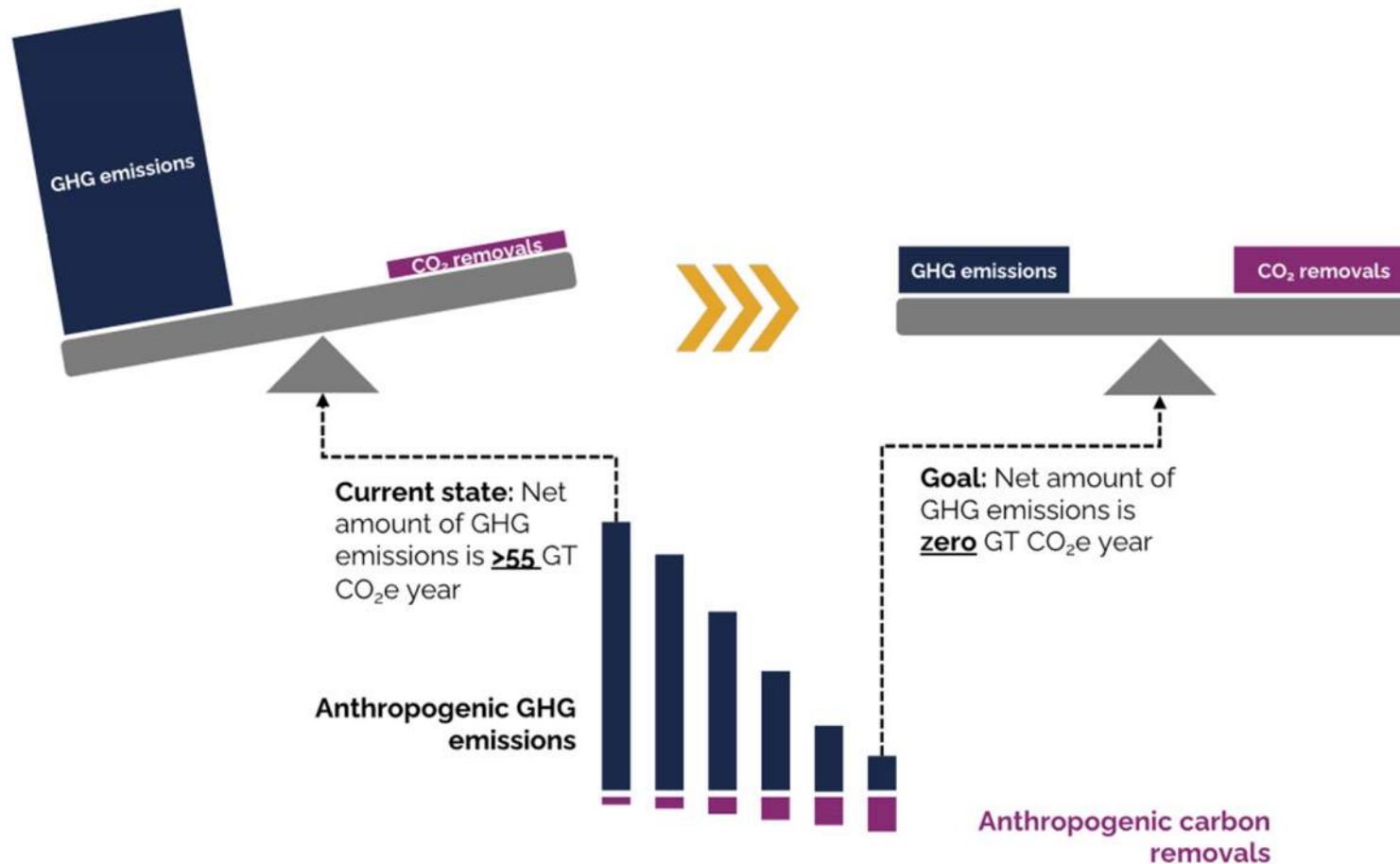
Ambition gap

Source: Ourworldindata.org



What does Net Zero mean?

Understanding net zero at a global level

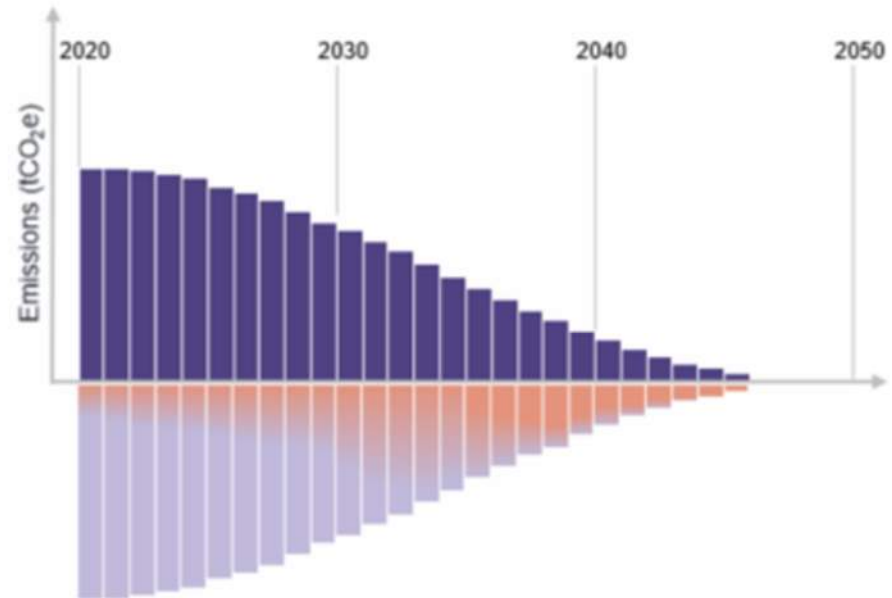
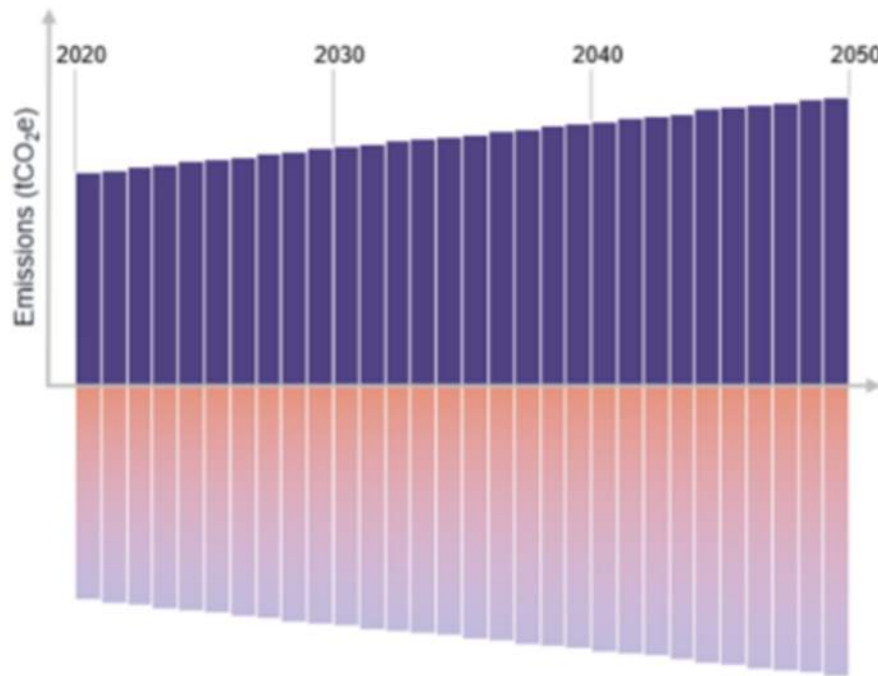


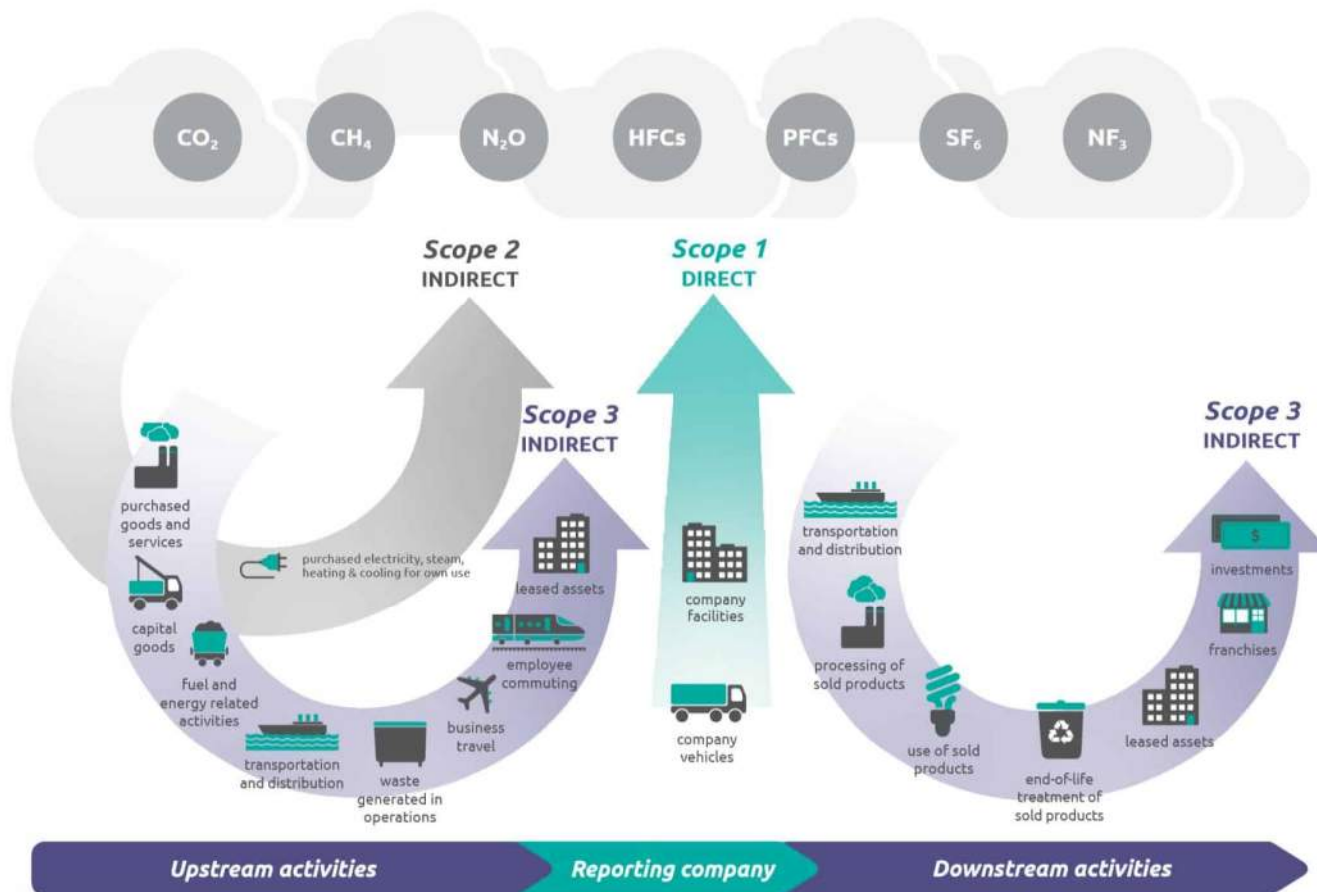
To limit global warming to 1.5°C, we must reach net zero carbon emissions **no later than 2050**

Source: SBTi Net Zero launch presentation

ACEI ASSOCIATION OF
CONSULTING ENGINEERS
OF IRELAND

Carbon neutral?





Scope 1, 2 & 3 GHG Emissions



Emission Scope

Key Criteria for Near- and Long-Term Science-Based Targets

			Scope 1 and 2			Scope 3			
Near-term science-based targets	Target boundary		95% coverage of scopes 1 + 2			If scope 3 >40% of total emissions: boundary to cover min. 67% of scope 3.			
	Target year		5 – 10 years from date of submission			5 – 10 years from date of submission			
	Method eligibility and minimum ambition	Method	Absolute Contraction	Physical Intensity Convergence	Renewable electricity (scope 2 only)	Absolute Contraction	Physical Intensity Convergence	Supplier or customer engagement	Physical Intensity Contraction and Economic Intensity
		Eligibility and min. ambition	• 4.2% linear annual reduction (LAR)	• Depends on sector and company inputs (SDA)	• 80% RE by 2025 • 100% RE by 2030	• 2.5% LAR	• Depends on sector and company inputs (SDA)	• e.g. 80% of suppliers by emissions by 2025	• 7% year-on-year (both options)
Long-term and net-zero science-based targets	Target boundary		95% coverage of scopes 1 + 2			90% coverage of scope 3			
	Target year		2050 or sooner (2040 for the power sector)			2050 or sooner			
	Method eligibility and minimum ambition	Method	Absolute Contraction	Physical Intensity Convergence	Renewable electricity (scope 2 only)	Absolute Contraction	Physical Intensity Convergence	Supplier or customer engagement	Physical Intensity Contraction and Economic Intensity
		Eligibility and min. ambition	• 90% reduction (cross-sector pathway) • 80% reduction for FLAG • Other sector pathways vary	• Sector / commodity pathways vary	• 100% RE	• 90% reduction (cross-sector pathway) • 80% reduction for FLAG • Other sector pathways vary	• Sector / commodity pathways vary	• Methods are not eligible for long-term SBTs	• 97% reduction (both options)

Not eligible

1.5°C ambition

Well-below 2°C ambition

Key Criteria for Near- and Long-Term – Pledge to Net Zero

		Scope 1 & 2	Scope 3
Near-term science-based target	Target boundary	95% coverage of scopes 1 + 2	If scope 3 > 40% of total emissions boundary to cover min 67% of scope 3
	Target year	5-10 years from date of submission	5-10 years from date of submission
	Method	Absolute Contraction	Absolute Contraction
	Eligibility & minimum ambition	4.2% linear annual reduction (LAR) (1.5°C ambition)	2.5% linear annual reduction (LAR) (Well below 2°C ambition)(WB2C)
Long –term and net zero science based target	Target boundary	95% coverage of scopes 1+2	90% coverage of scope 3
	Target year	2050 or sooner	2050 or sooner
	Method	Absolute Contraction	Absolute Contraction
	Eligibility & minimum ambition	90% - 95% reduction	90% - 95% reduction

1

2

3

SET A SCIENCE BASED
GREENHOUSE GAS TARGET

including 95% of total scope 1 and
2 emissions

Including at least 90% of total
scope 3 emissions

Aiming for a linear 4.2% annual
reduction in scope 1 and 2
emissions over the target period.

Aiming for at least a linear **2.5%**
annual reduction of scope 3
emissions over the target period

PUBLICLY REPORT
PROGRESS EACH YEAR

PUBLISH ONE PIECE OF
THOUGHT LEADERSHIP
EACH YEAR

Pledge to Net Zero: Three Commitments



Register
Commitment
– Make the
Pledge



Set Inventory
Boundary



Develop a
Baseline



Setting a
Target



Reporting



Advancing
the field



Assurance /
Peer review

Process: Making the Pledge

PTNZ Guidance documents

- PTNZ – Guidance for Signatories (ROI)
- PTNZ – Guidance for GHG Accounting and Reporting (ROI)
- Best Practice for Microbusinesses (ROI)
- Race to Zero Guidance (ROI)

PLEDGE TO NET ZERO
Guidance for GHG Accounting and Reporting (ROI)

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Overview

The following guidance has been issued to support signatories to the Pledge to Net Zero account, set targets and publicly report on greenhouse gas emissions. This is integral to set and commit to deliver a greenhouse gas target in line with a 1.5°C climate change scenario and publicly report greenhouse gas emissions and progress against targets each year.

The guidance will address:

- Scope 1: Direct GHG emissions that occur from sources that are owned and/or controlled by the signatory e.g. gas burnt on site, pool vehicles, HFC and CFCs in company real estate.
- Scope 2: Indirect GHG emissions from the generation of purchased electricity consumed by the company.
- Scope 3: All other significant indirect GHG emissions that occur as a consequence of the signatory's activities, but that are from sources not owned or controlled by the company (e.g. business travel and commuting).

PLEDGE TO NET ZERO
Guidance for Signatories (ROI)

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Overview

To become a signatory to the Pledge to Net Zero, companies shall commit to:

1. Reducing greenhouse gas emissions by setting a science-based carbon reduction targets
 - Including 95% of total scope 1 and 2 emissions
 - Including at least 95% of total scope 3 emissions for the long term target
 - Aiming for a linear 4.2% annual reduction in scope 1 and 2 emissions over the target period
 - Aiming for at least a linear 2.5% annual reduction of scope 3 emissions over the target period
2. Reporting greenhouse gas emissions against targets year-on-year
3. Playing an active role in advancing the industry's progress towards a net zero carbon economy

www.pledgetonetzero.org

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The image shows a web form for 'Pledge to Net Zero'. At the top left is a green logo with the text 'PLEDGE TO NET ZERO'. To the right is a navigation bar with links: Home, About, Pledge, Events, Signatories, FAQ, Reading Room, and Contact. A 'Pledge Now >' button is in the top right. The form is divided into four sections: 1. 'PLEDGING ORGANISATION' with a text box for 'Organisation name'. 2. 'PLEDGE CONTACT' with a sub-header 'Details of the main point of contact for the organisation relating to Pledge to Net Zero.' and four text boxes for 'Full name', 'Job title', 'Email address', and 'Contact number'. 3. 'ENDORSEMENT' with a sub-header 'Details of a member of your organisation who will be endorsing the Pledge to Net Zero commitment. This person should hold either an executive team or board member level position' and two text boxes for 'Full name' and 'Job title'. 4. 'PLEDGE' with a checkbox and the text 'I confirm that the above stated organisation would like to Pledge to Net Zero' and a 'Submit pledge >' button.

PLEDGE TO NET ZERO

Home About **Pledge** Events Signatories FAQ Reading Room Contact

Pledge Now >

PLEDGING ORGANISATION

Organisation name

PLEDGE CONTACT

Details of the main point of contact for the organisation relating to *Pledge to Net Zero*.

Full name

Job title

Email address

Contact number

ENDORSEMENT

Details of a member of your organisation who will be endorsing the *Pledge to Net Zero* commitment. This person should hold either an executive team or board member level position

Full name

Job title

PLEDGE

☐ I confirm that the above stated organisation would like to Pledge to Net Zero

Submit pledge >

Step 1: Register Commitment

- ☐ Register your commitment via the website
 - ☐ <https://acei.ie/pledge-to-net-zero-news>
 - ☐ www.pledgetonetzero.org
- ☐ This includes identifying a member of your organisation who will be endorsing the commitment.
 - ☐ This person should hold either an executive team or board member level position.

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Step 2: Set Inventory Boundary:

Part 1 Organisational

Part 1: Set Organisational Boundaries

- Define all operations that constitute the 'company'
 - For organisations who own 100% of their operations, boundaries will be clear and this step will therefore not be necessary.
 - If operations are not 100% owned, it is recommended that signatories take an operational control approach. This means any operations that the company has authority to implement policies for, are considered to constitute part of the company. For example, leased buildings and vehicles.

Step 2: Set Inventory Boundary:

Part 2 Operational

Part 1: Set Operational Boundaries

- Identify the direct and indirect emissions which will be included within accounting and reporting
- Activities which account for 95% of combined total scope 1 and 2 emissions must be included within the target.
- At least 90% of total scope 3 emissions must also now be accounted for within the long-term target, consistent with the treatment of Scope 1 and 2
- For more information on scope 3 accounting (including screening) please refer to guidance for accounting and setting a target

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Step 3: Develop a Baseline

Account for Emissions

- ❑ Calculate emissions for the chosen base year within the inventory boundaries
- ❑ A separate guide outlining how to calculate a carbon footprint for a typical consultancy, including worked examples, is provided as 'Guidance for Accounting and Reporting ROI'

PLEDGE TO NET ZERO Guidance for GHG Accounting and Reporting (ROI)

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Accounting


1. Activity Data


- ❑ This could include the amount of electricity or gas consumed (kWh) by office locations; or the distance flown (in km) for business travel.
- ❑ How this data is sourced depends upon the activity. For example, the amount of gas used in heating buildings (kWh) can often be sourced from the monthly bill provided by the utility company.

2. Emissions Factors

- ❑ In Ireland, emissions factors should be sourced from the SEAI.
 - ❑ <https://www.seai.ie/data-and-insights/seai-statistics/conversion-factors/>
- ❑ In UK, emissions factors should be sourced from the UK Government Department for Business, Energy & Industrial Strategy (BEIS) 'Greenhouse Gas reporting: conversion factors 2021' Report or the most recent guidance.
- ❑ These can be selected for the units of the activity data identified in step 1 (e.g. kg of CO₂e per kwh of electricity or kg of CO₂e per litre of diesel)

SEAI Conversion Factors webpage



Home Energy ▾Community Energy ▾Grants ▾Business & Public Sector ▾Technologies ▾Data & Insights ▾

Home / Data & Insights / Ireland's Energy Statistics / Conversion Factors

Conversion Factors

ON THIS PAGE

Energy units

Energy conversion factors

Calorific values

Emission factors

Fuel densities

Primary energy conversion factors

View the common conversion factors for energy use in Ireland.

Energy units

Energy is delivered in many different fuels and sources and can be expressed in terms of volume, mass, energy or emissions. Using the conversion factors below, it is possible to express each fuel or energy source in common units of energy or emissions so that they can be compared and aggregated.

Energy unit types

- Joule (J): Joule is the international unit of energy
- Kilowatt hour (kWh): This is the conventional unit of energy that electricity is measured by and charged for commercially.
- Tonne of oil equivalent (toe): This is a conventional standardised unit of energy (41.868 GJ), and is defined on the basis of a tonne of typical oil having a net calorific value of 41,868 kJ/kg. A related unit is the kilogram of oil equivalent (kgoe), where 1,000 kgoe = 1 toe.

SEAI Conversion Factors - Emissions

Solid Fuels and Derivatives	tCO ₂ /TJ (NCV)	tCO ₂ /TJ (NCV)
Coal	94.6	340.6
Milled Peat	116.7	420.0
Sod Peat	104.0	374.4
Peat Briquettes	98.9	355.9
Natural Gas	56.9	204.7
Electricity 2018	104.3	375.4
Electricity 2019	90.1	324.5
Electricity 2020	82.2	295.8



Accounting – worked example (Scope 1)

1. Boiler Emission

❑ Required Activity data:

❑ Type of fuel used: natural gas

❑ Quantity of fuel used at the facility: 145,000 kWh

❑ Required Emissions factor: 204.7 g CO₂/kWh (SEAI conversion factors)

❑ $145,000 \times 204.7 = 29,681,500 \text{ g CO}_2\text{e} = 29.68 \text{ tonnes CO}_2\text{e}$

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Accounting – Scope 2

Two
Approaches

**Location-based
approach**

**Market-based
approach**

Accounting – Scope 2 – Location-based



Location-based approach



Reflects the average emissions intensity of grids on which energy consumption occurs



This uses grid-average emission factors

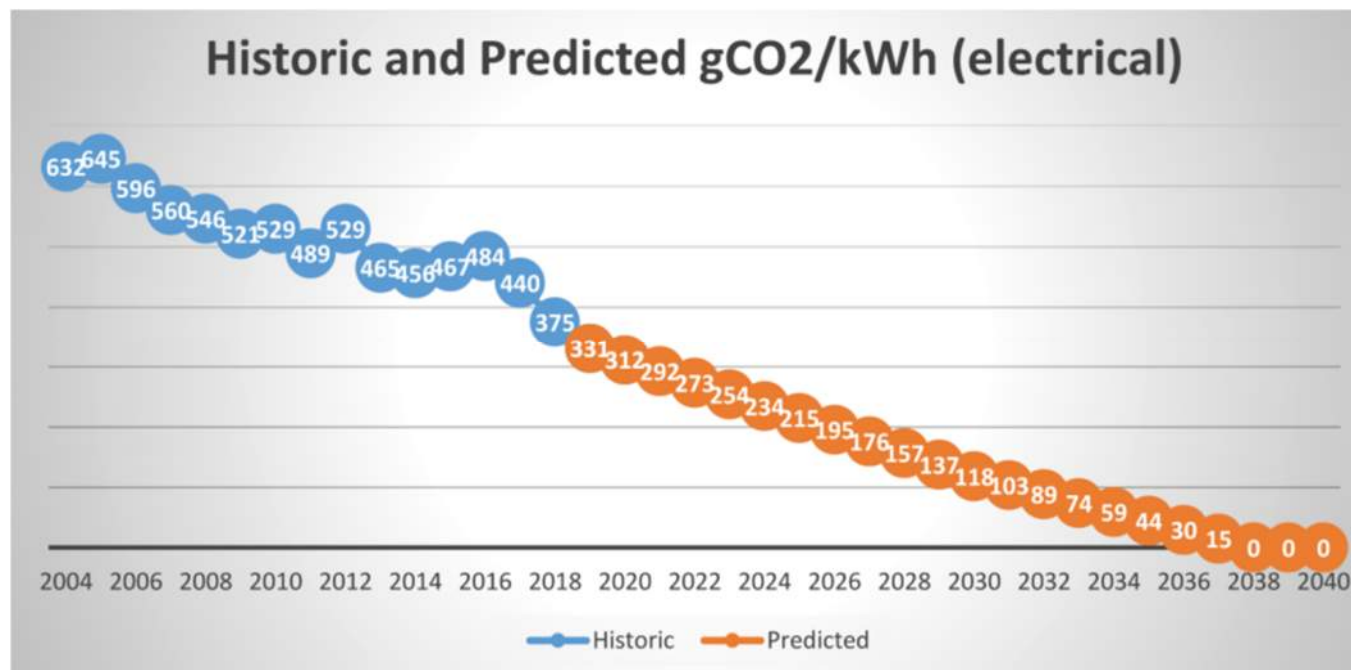
In Ireland, this would be the national grid emission factor, which is available from SEAI

In the UK, this would be the national grid emissions factor, which is available from BEIS



When using the location-based approach emissions can generally only be reduced through reducing activity data

Accounting – Scope 2 – Location-based



Grid emissions prediction
(source UCC)

Accounting – Scope 2 – market-based



Market-based approach



Reflects the emissions from the specific electricity sources and/or products that the signatory may have purchased



For example, a contractual agreement with the energy provider, who would be able to provide the emissions factor specific for that product (normally as part of your annual 'fuel mix' statement).







The market-based approach on the other hand can be reduced through sourcing lower emissions energy and reducing activity data.



In cases where more specific emission factors cannot be collected, then a residual mix emission factor should be used. The latest figures are provided below in table 1, but full and revised reports are available on the AIB website

Accounting – Scope 2 – market-based

Suppliers making declarations	Coal	Gas	Peat	Renewable	Other	Total	gCO ₂ /kWh
 All-Island Fuel Mix	2.6%	37.9%	4.3%	54.0%	1.2%	100%	254
 Bord Gáis Energy	0.1%	68.6%	0.2%	31.1%	0.0%	100.0%	318
 electric Ireland	2.8%	44.0%	4.5%	47.5%	1.3%	100.0%	284
 enÉrgia <small>Switched on</small>	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0

Supplier specific emissions rate

Extract from CRU 2019 report

Residual Mix emission factors

Year	Residual Mix emission factor (GB)	Residual Mix emission factor (ROI)
2020	316 gCO ₂ / kWh (p13 Figure 4)	446 gCO ₂ / kWh
2019	348 gCO ₂ / kWh (p13 Figure 4)	495 gCO ₂ / kWh
2018	381 gCO ₂ / kWh (p13 Figure 5)	634 gCO ₂ / kWh
2017	367 gCO ₂ / kWh (p13 Figure 5)	641 gCO ₂ / kWh
2016	391 gCO ₂ / kWh (p13 Figure 5)	761 gCO ₂ / kWh

Notes on Scope 2:

- ☐ If exact data is not available for the entire year, average energy or fuel consumption per month can be used to estimate consumption.
- ☐ Emissions should be summed across different sources of emissions and different facilities in order to obtain a total scope 1 and 2 footprint.

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Size - The emissions resultant from the category contribute significantly to total anticipated scope 3 emissions.



Influence - The organisation has the ability to take actions to reduce the given category's emissions.



Risk - Contributes to risk exposure. This could include risks related to finance, regulation, supply chain, product and customer, litigation and reputation.



Stakeholder - The category is seen to be important by stakeholders. These could include customers, suppliers, employees or investors.

Accounting –
Scope 3
Which Scope 3
Categories to
include within
a target?

PTNZ – Advice on Scope 3

GHG Category	Emission type	Examples
1	Purchased Goods and Services	Office supplies and subconsultant services
3	Transmission and Distribution Loss	Fuel and energy-related activities not in scope 1 and 2
5	Waste generation in operation	Office general waste
6	Business travel	
7	Employee commuting	Including homeworking is optional
15	Investments	

Accounting – Scope 3 – Evaluator –start early!

1. Business Travel

- ☐ Modes of transport used
- ☐ Total spend or distance travelled for each mode of transport

2. Purchased Goods and Services

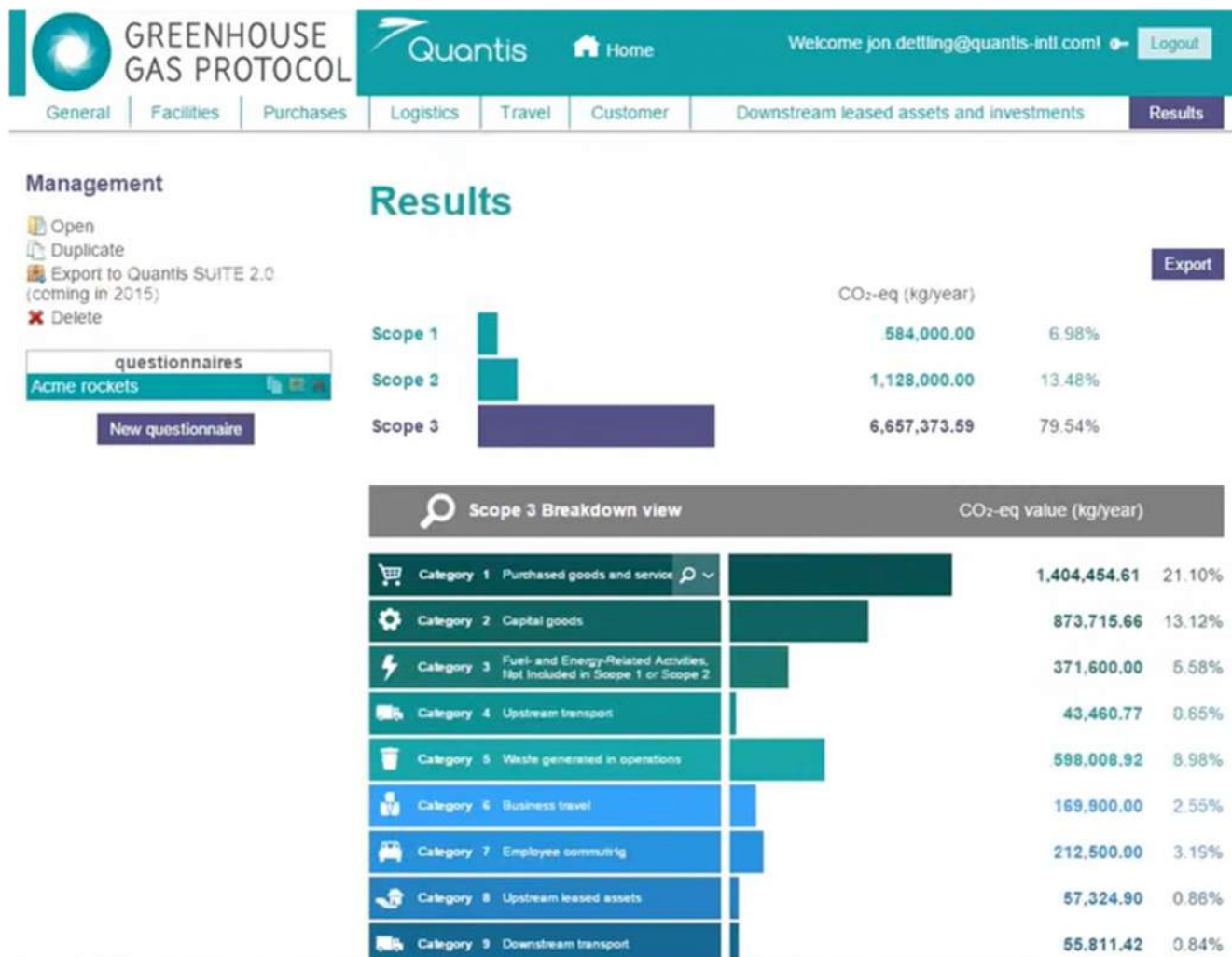
- ☐ Products and services bought
- ☐ Amount spent for each good or service

3. Investments

- ☐ The type of investment made e.g. joint venture, equity investment
- ☐ The industry sector that most closely matches the sector in which you made the investment
- ☐ Amount spent on each investment

4. Waste Generated in Operations

- ☐ Amount spent on waste management



WRI / Quantis Scope 3 Evaluator

Downstream leased asset and investment questions

Downstream leased assets

☐ Are there any other leased assets that you have not accounted for using this tool OR did you use equity share to calculate your scope 1 and 2 emissions?

Franchises

☐ Is your organization a franchisor?

Investments

☒ I have investments in joint ventures, subsidiaries, or associate companies that were not captured in my Scope 1 emissions

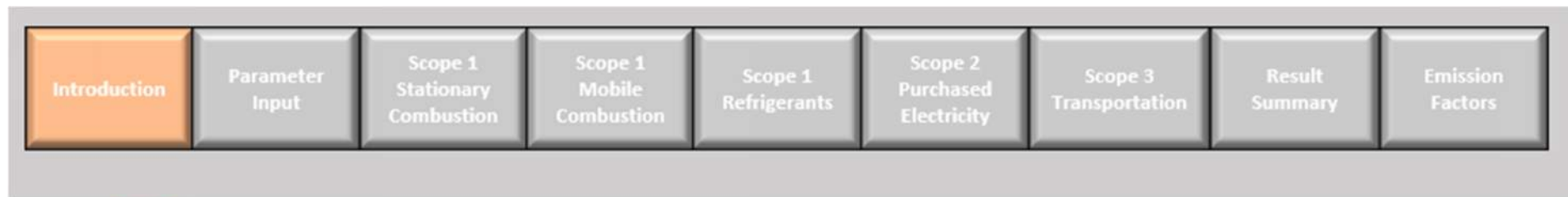
We need to know what, if any, investments you made from start date to end date.

First, choose the type of investment from the drop-down (e.g., joint ventures, equity investments, associated companies, subsidizers, debt investment) and then select the industry sector that most closely matches the sector in which you made your investment. Then, enter the activity data quantity. According to the GHG Protocol Scope 3 guidance, “Emissions from investments should be allocated to the reporting company based on the reporting company's proportional share of investment in the investee.” Do not include any investments or joint ventures that are included in your scope 1 & 2 emissions.

Type of investment	Industry sector groups	USD (basic prices)
Associated company ▼	Construction ▼	<input type="text"/> ✕
Add more types		

WRI / Quantis Scope 3 Evaluator - Investments

GHG Emissions Calculation Tool



GREENHOUSE
GAS PROTOCOL

Welcome to the GHG Emissions Calculation Tool

A calculation tool for estimating GHG emissions based on the GHG Protocol

Accounting – Scope 3 – Homeworking Emissions



Consists of two parts:

office equipment energy
heating energy



Homeworking full time
equivalent (HWFTE)
distinguishes between number
of days worked from home by
employees.

For example, those who
work from home 2 days
per 5-day week would
represent 0.4 HWFTEs, and
a fulltime homeworker
would represent 1



Accounting – Scope 3 – Homeworking Emissions

General homeworking assumptions:

- ☐ Working hours per annum (WHpa) = 1920
- ☐ Working hours per month (WHpcm) = 160
- ☐ Workstation energy = 140W per desk
- ☐ Lighting = 10W per desk
- ☐ Incremental heating consumption per HWFTE per heating month = 800kWh
- ☐ Percentage of colleagues moving to homeworking which would result in incremental heating energy = 66.7%

Accounting – Scope 3 – Homeworking Emissions

Office Equipment:

$$\text{Workstation kWh} = 140W \times \text{HWFTE} * \frac{\text{WHpa}}{1000}$$

$$\text{Lighting kWh} = 10W \times \text{HWFTE} * 0.667$$

$$\text{Workstaton kWh} + \text{Lighting kWh} = \text{Total Office Energy}$$

Heating Energy:

$$800\text{kWh} \times \text{HWFTE} \times 0.667$$

Accounting – Scope 3 – Transmission & Distribution Loss

Transmission and Distribution Losses: Average-Data Method:

- ❑ Activity data: electricity per unit of consumption (e.g. MWh) broken down by region or country.
- ❑ Emissions factor: Country average T&D loss rate (percent). T&D loss rates have been published by the World Bank and can be found in the data bank. Electric power transmission and distribution losses (% of output) | Data (worldbank.org)

$$\sum \text{Electricity consumed (kWh)} \times \text{Electricity life cycle emission factor} \left(\text{kg} \frac{\text{CO}_2\text{e}}{\text{kWh}} \right) \times \text{TD loss rate (\%)}$$

	Source	Baseline year (tCO2e)	Reporting year (tCO2e)
Scope 1	Gas, oil and biomass		
	HFC & CFC		
	Company-owned fleet		
Scope 2	Electricity (location-based)		
	Electricity (market-based)		
	Heating (if any)		
	Cooling (if any)		
Scope 3	Business travel		
	Commuting		
	Homeworking		
	Purchased Goods & Services		
	Transmission & Distribution Losses		
	Waste Generated in Operations		
	Investments		
Total	(using either market-based electricity emissions or location based)		

Report Template

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Step 4: Set a Target

Choose a Target Year

A long-term 2050 target– encourages planning to manage long term risks and opportunities from a 2017-2020 base year.

A near-term target (optional) which covers a minimum of 5 and a maximum of **10 years** – increases ability to identify immediate inefficiencies and opportunities

Scope 1 & 2 Targets

- All new signatories from October 2021 must aim for a 1.5°C trajectory - implies a linear 4.2% annual linear reduction in scope 1 and 2 emissions over the target period

Scope 3

- Must aim for at least a **well below 2°C trajectory** - implies a minimum 2.5% annual linear reduction.
- It is encouraged for signatories to pursue greater scope 3 ambition with targets which are consistent with a 1.5°C trajectory (4.2% linear reduction).

SBTi Target Setting Tool



Science-based Target Setting Tool

Version: Version 2.0

Support: info@sciencebasedtargets.org

Section 1. Input data

Target setting method	Absolute Contraction Approach	<i>This approach is not applicable to power generation emissions</i>
SDA scenario		<i>Not applicable</i>
SDA sector		<i>Not applicable</i>
Base year	2019	<i>Select a base year</i>
Base year Activity output		
Base year Scope 1 emissions	40	tCO ₂ e
Base year Scope 2 emissions	70	tCO ₂ e
Target year	2030	<i>Select a target year</i>
Target year Type of activity projection		
Target year Activity output		
Most recent year (MRY)	2022	<i>Select most recent year of available emissions&activity data</i>
MRY Scope 1 emissions	35	tCO ₂ e
MRY Scope 2 emissions	65	tCO ₂ e

Please see res

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CONSULTING ENGINEERS
OF IRELAND

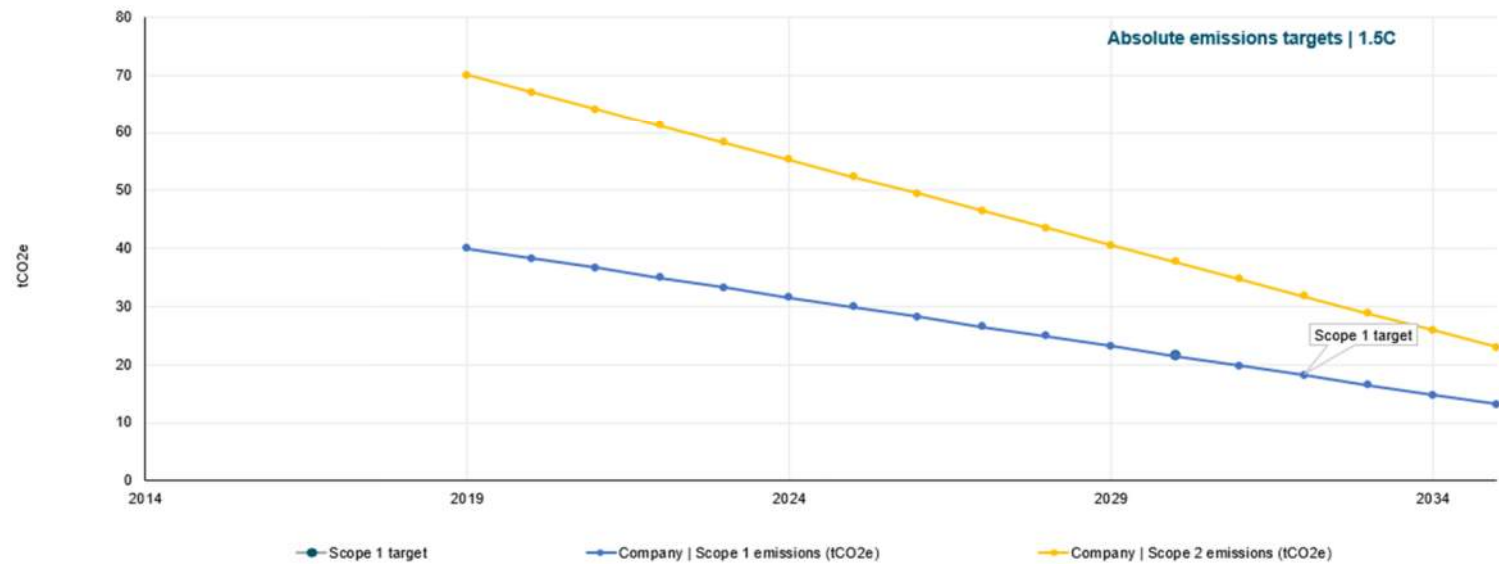
SBTi Target Setting Tool

Section 3. Absolute Contraction Approach

1.5 degree scenario (1.5C)

[Review all target modelling data](#)

	Base year (2019)	Most recent year (2022)	Target year (2030)	% Reduction to date	% FLA Adjustment	% SBT reduction
Scope 1 emissions (tCO2e)	40	35	22	12.5%	Not required	46.2%
Scope 2 emissions (tCO2e)	70	65	38	7.1%	Not required	46.2%
Scope 1+2 emissions (tCO2e)	110	100	59	---	0.0%	46.2%



ASSOCIATION OF
CONSULTING ENGINEERS
OF IRELAND

Timelines

Make Pledge by 31st December 2021

Submit first science-based target 15th May 2022

Submit between 6th November 2022 and 31st January 2023:

- carbon footprint
- progress against target
- first publish article/ evidence of mentoring and support

Pledging Windows

- 31st December 2021
- June 2022
- December 2022

Agenda

1. Recap
2. Set Inventory Boundary
3. Develop a Baseline – Scope 1
4. Develop a Baseline – Scope 2
5. Develop a Baseline – Scope 3
6. Setting a Target
7. Q&A



ETHOS | sustainability

Carbon Footprint

Marcos Jimenez

Who are Ethos Engineering?

OUR CONSULTANCY IN NUMBERS

1390
Successful Projects

391
Satisfied Clients

2
Irish Offices



People

Quality

Relationships

Why we're managing our carbon footprint

The big picture

1. Climate change
2. EU/ Government Policy

As a company

- Lead by example
- Practice what we preach/walk the talk
- Ethically right to do
- When done effectively, carbon management offers many advantages including lower operating costs, improve brand perception, meeting regulations etc.

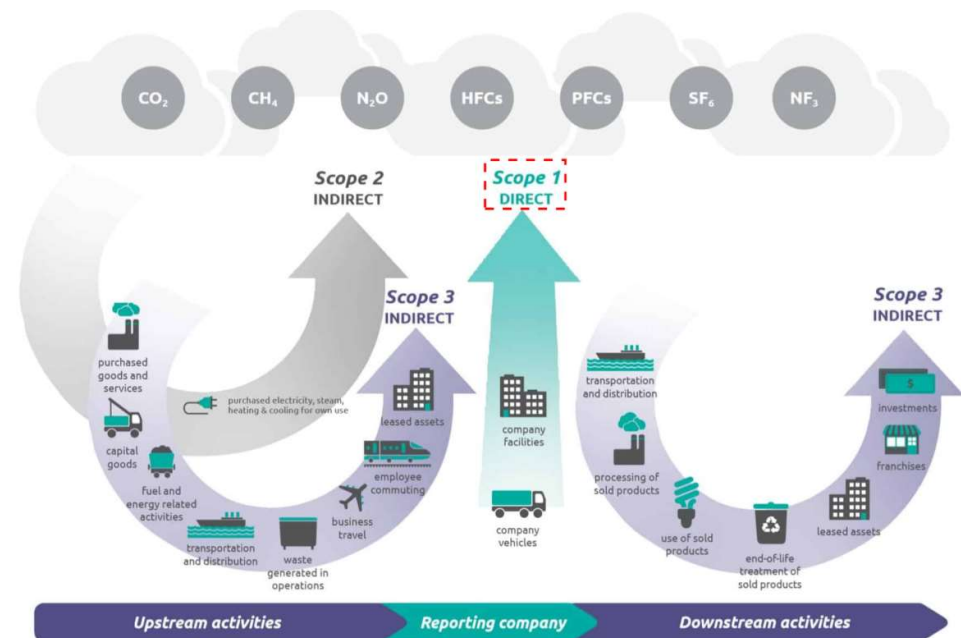


Scope 1: Direct GHG Emissions

Direct GHG emissions occur from sources that **are owned or controlled by the company**, for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.

(source: GHG Protocol Corporate Standard)

- Gas, oil and biomass
- HFC & CFC
- Company-owned fleet



Scope 1: Calculating Our Emissions

Calculation of Scope 1 Emissions: Gas Boilers & Air Conditioning

SEAI Conversion factor tables were used to calculate CO₂ produced from burning natural gas.

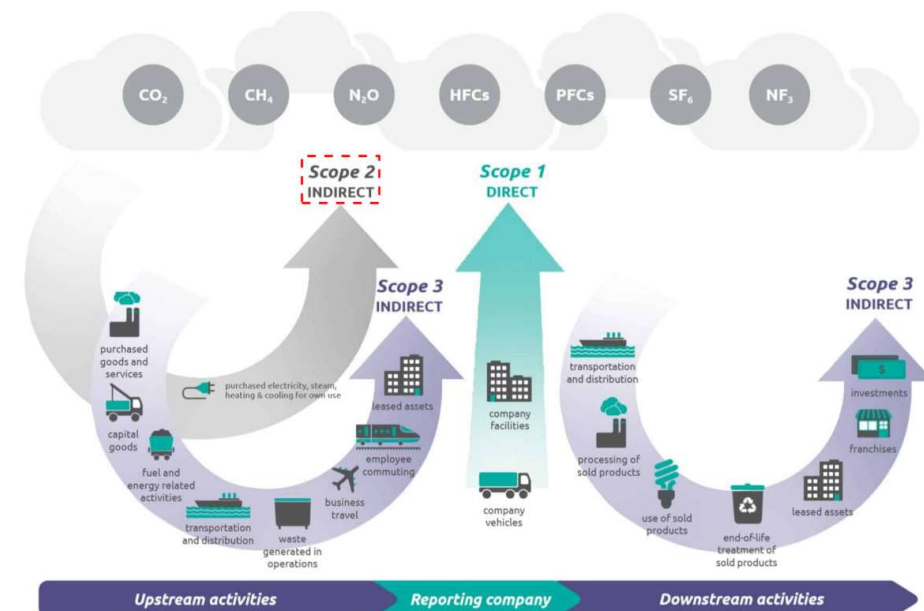
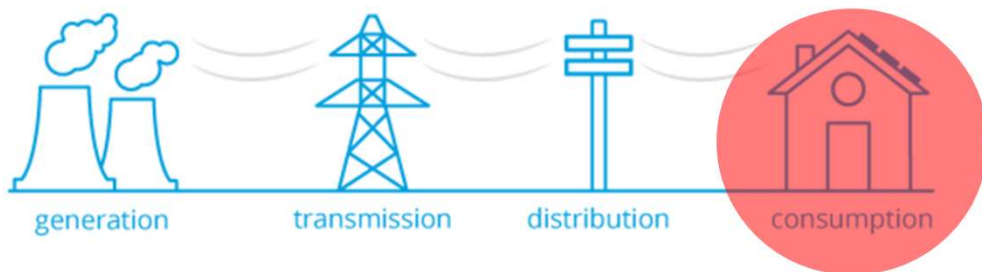
System	Fuel	Conversion Factor (2019) g CO ₂ /kWh (NCV)	Scope 1 Emissions from boilers in 2019 for Dublin Office (t. CO ₂ e)
Gas Boiler	Natural Gas (2019)	204.7	18.01
System	Refrigerant	Refrigerant Charge	Scope 1 Emissions from air- conditioning in 2019 for Dublin Office (t. CO ₂ e)
Air Conditioning	R410A	13kg	0.134

Scope 2: Electricity Indirect GHG Emissions

Scope 2 accounts for GHG emissions from the **generation of purchased electricity consumed by the company**. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company.

(source: GHG Protocol Corporate Standard)

- Electricity
- Heating
- Cooling



Scope 2: Calculating Electricity Indirect Emissions

Calculation of Scope 2 Emissions: Electricity

Location based approach: SEAI Conversion factor tables were used to calculate CO₂ produced from purchased electricity.

Location-Based	g CO ₂ /kWh (NCV)	Scope 2 Emissions in 2019 for Dublin Office (t. CO ₂ e)
Electricity (2019)	324.5	19.62

In Ireland, SEAI Electricity emissions data includes for Transmission & Distribution losses

Market-based approach: SEAI Conversion factor tables were used to calculate CO₂ produced from purchased electricity.

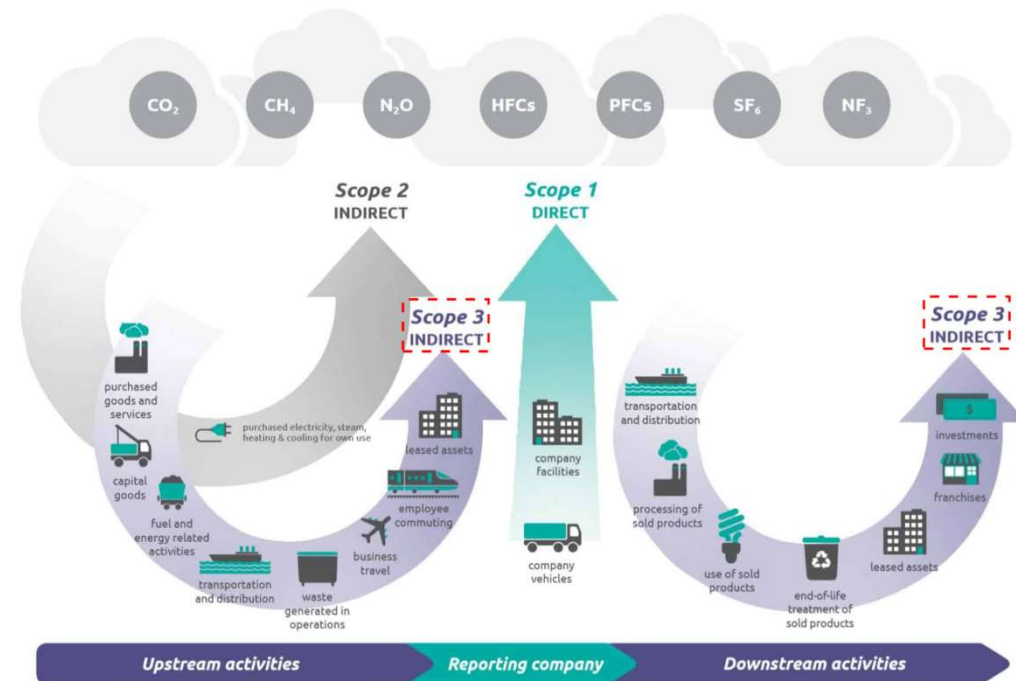
Market-Based	Commission for Regulation of Utilities (CRU)	Scope 2 Emissions in 2019 for Dublin Office (t. CO ₂ e)
Energia Electricity (2019)	100% Renewable	0

8% Transmission & Distribution losses accounted for in Scope 3

Scope 3: Other Indirect GHG Emissions

Scope 3 emissions are a consequence of the activities of the company, **but occur from sources not owned or controlled by the company.**

- Business Travel
- Commuting
- Homeworking
- Purchased Goods & Services
- Transmission & Distribution (Market-Based Electricity)
- Waste
- Investments



Scope 3: Calculating Other Indirect GHG Emissions

Calculating Scope 3 Emissions: Air Travel & Road Travel

Air Travel

Air Business Travel emissions were calculated for the Dublin office using the GHG Protocol travel calculator.

Distance travelled by flight type 2019

Domestic (km)	456
Short Haul (km)	26,368
Long Haul (km)	131,484

Tonnes of CO₂ by flight type for 2019

Domestic	0.08
Short Haul	2.56
Long Haul	14.89

Total Tonnes CO ₂ e in 2019	17.52
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Scope 3: Other indirect GHG emissions

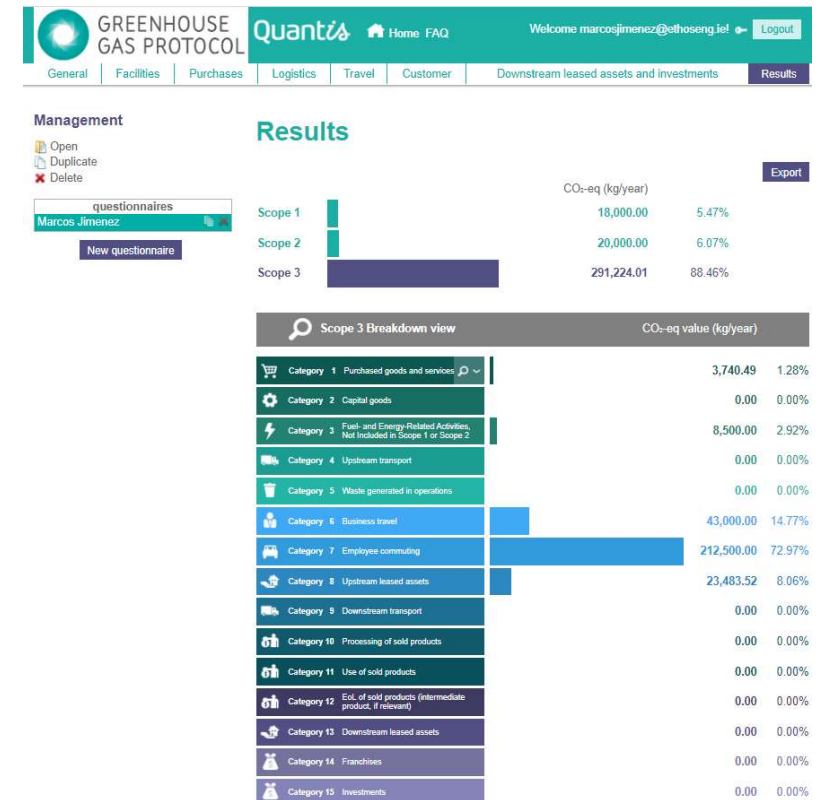
Road Business Travel

A list of Claimed road mileage was also provided, this allowed us to calculate the emissions from employees travelling to site and business meetings.

2019 Claimed km	114,827
Tonnes of CO ₂ e in 2019	24.67

GHG Protocol + Quantis Scope 3 Evaluator Tool

- First, rough approximation of your scope 3 footprint
- Significantly reduces the time needed to estimate scope 3 emissions organizations type and size
- Requires minimal data collection
- Appropriate for both experts and those new to carbon accounting.



Calculating further Scope 3 emissions

Anonymous Employee Survey

A survey will be developed and sent to all employee's. The questions in the survey will help us to determine the impacts of commuting to the office and working from home.

- How do you typically commute to the office?
(Car/walk/public transport etc.)
- What type of heating system does your home have ?
(Gas/Oil/HP etc.)



Accounting for Waste, Purchased goods & Services and Investments

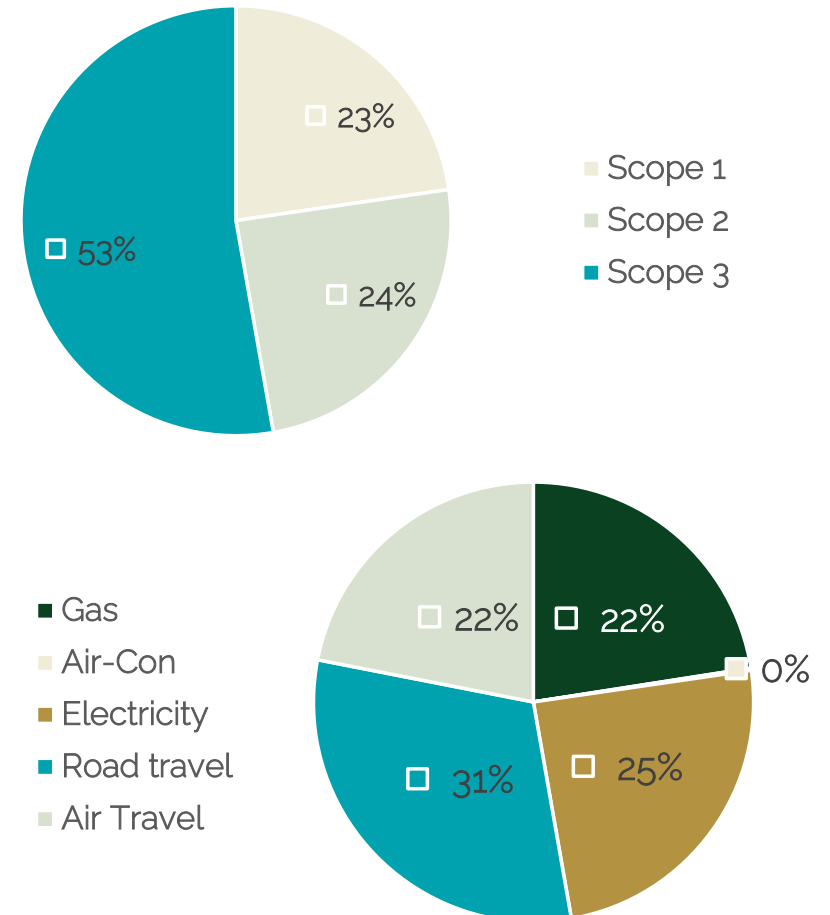
The evaluator tool calculates a carbon impact of scope 3 emissions if the cost of each activity is known. We're currently in the process of gathering this data.

- Waste generation, Outsourcing services, Equipment/ Office supplies, Couriers

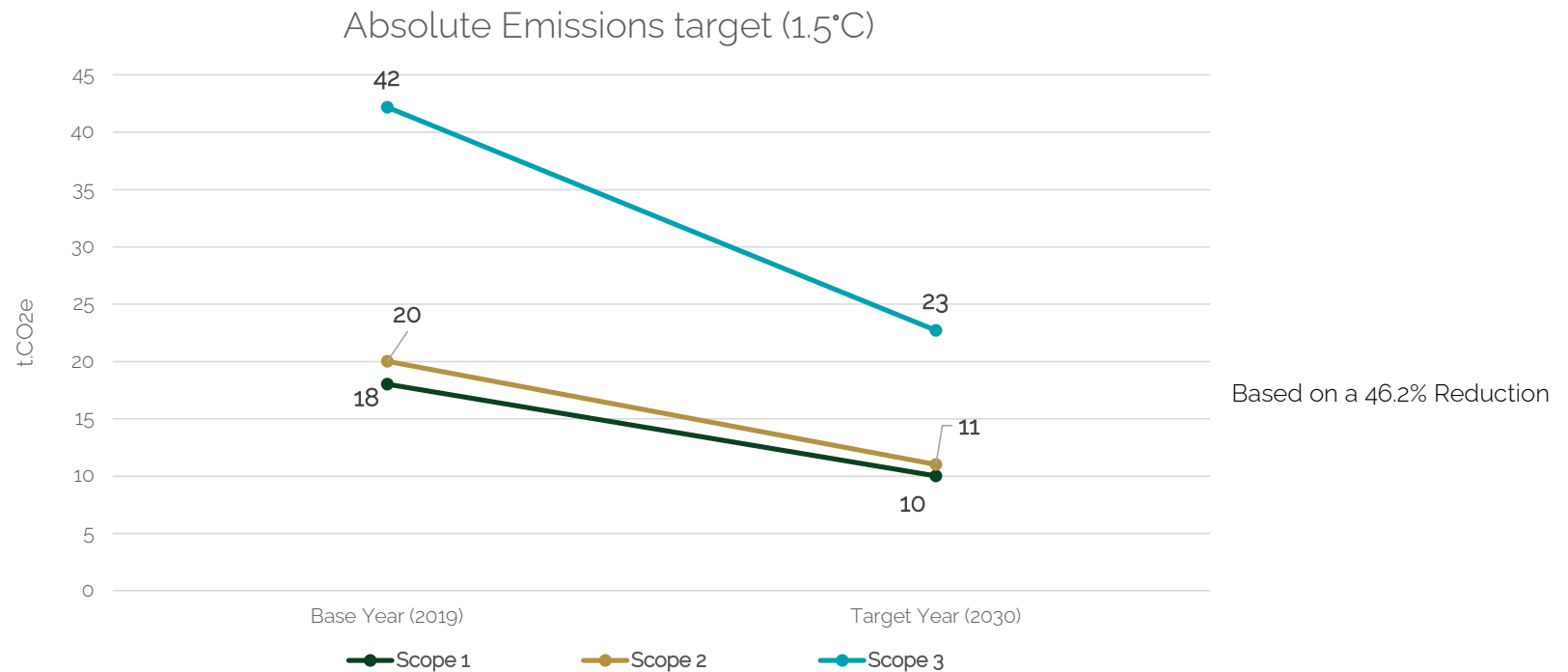


Ethos Dublin Office Carbon Footprint (So far)

	Source	Dublin Office – 2019 Baseline year (tCO ₂ e)
Scope 1	Gas, oil and biomass	18.01
	HFC & CFC	0.134
	Company-owned fleet	n/a
Scope 2	Electricity (location-based)	19.62
	Electricity (market-based)	0
	Heating (if any)	n/a
	Cooling (if any)	n/a
Scope 3	Business travel	42.2
	Commuting	In progress
	Homeworking	n/a for 2019
	Purchased Goods & Services	In progress
	Transmission & Distribution Losses	1.576 (Only include with MBA)
	Waste Generated in Operations	In progress
	Investments	TBC
Total	(using conservative Location-based electricity emissions)	80.13



What this means for Ethos (based on our findings so far)



These are 'absolute' reductions, they are not adjusted for growth.

If we have 110 employees during our base year (2019) and then have over 250 in 2030, the emissions reduction of 46.2% is based on the 2019 year and is not adjusted for growth.

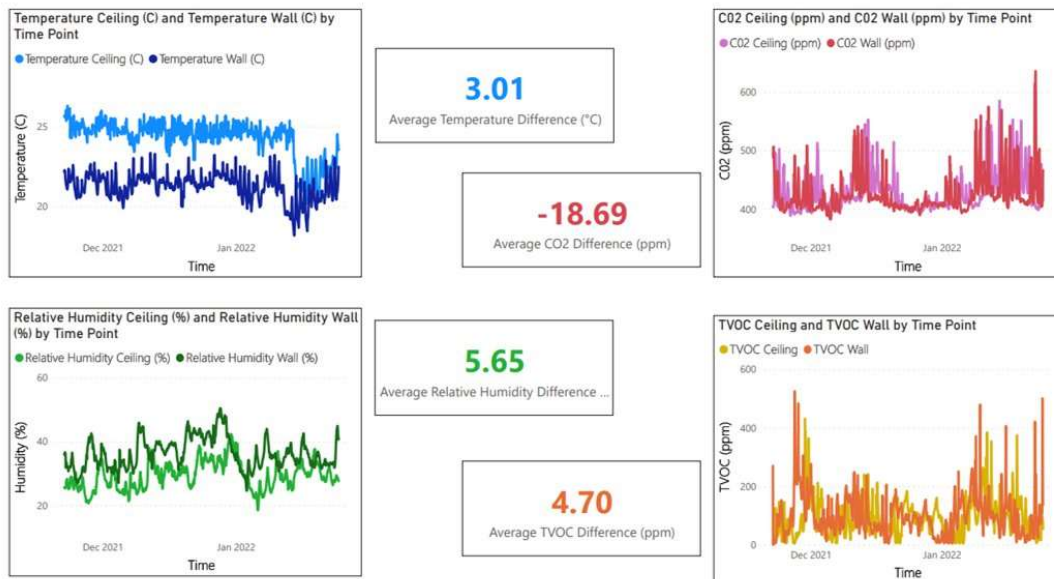
Overall next steps

- Calculate the remaining scope 3 emissions to be included in our baseline year.
- Repeat the process for other offices and calculate our overall carbon footprint.
- Set our baseline and target year.
- Identify strategies to reduce our Scope 1,2 & 3 emissions
- Determine the best method of tracking data - Clear data recording will improve accuracy and save time
- Review, Implement, Record and Report Annually
 1. Review reduction strategies proposed
 2. Implement strategies
 3. Record energy data and travel
 4. Report results

What we're doing now

Ethos Digital - The Living Lab – Energy Reporting

Smart monitoring of operational performance



Transport and Travel reporting

To streamline our scope 3 travel impacts, we will utilise better reporting tools and services going forward



Working from Home Energy Guide for future reporting

How can you make your home more energy efficient

- Heating systems + Controls
- Lighting
- Ventilation
- Air Tightness





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Thank you.

Marcos Jimenez

Carbon Neutral

Context for decarbonisation –
Mott MacDonald



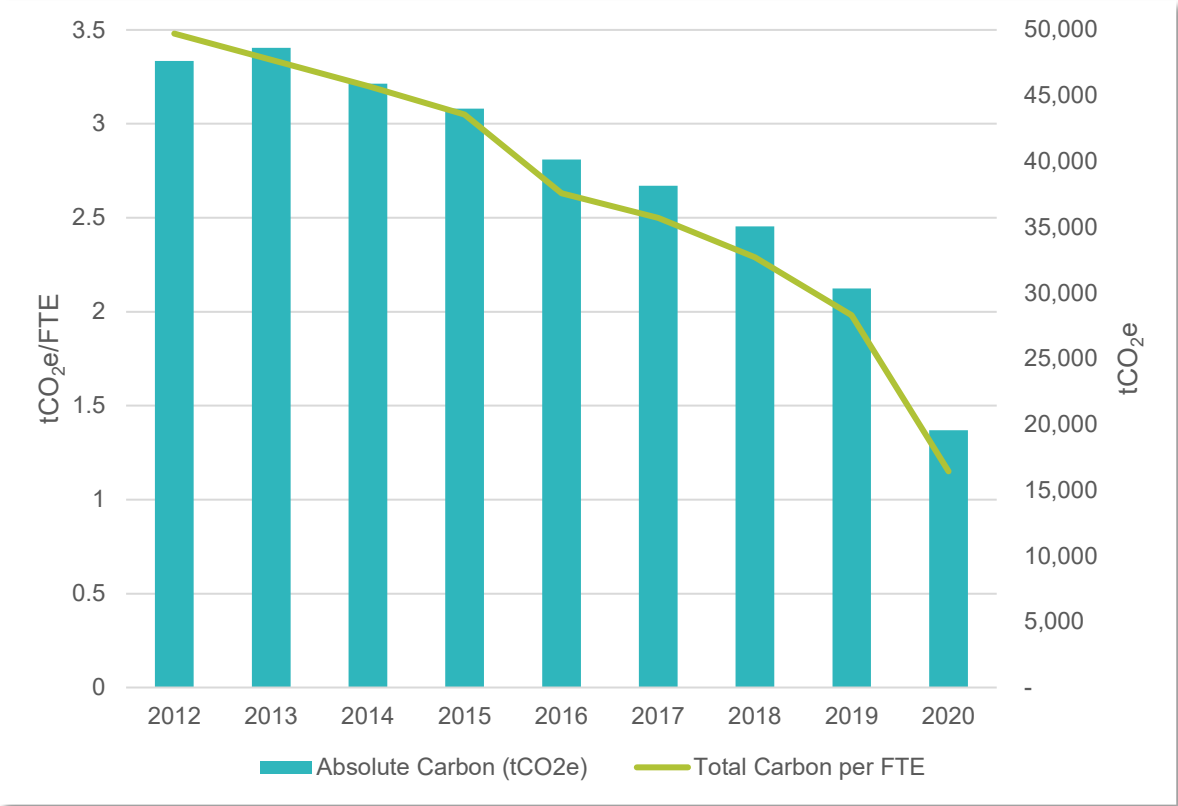
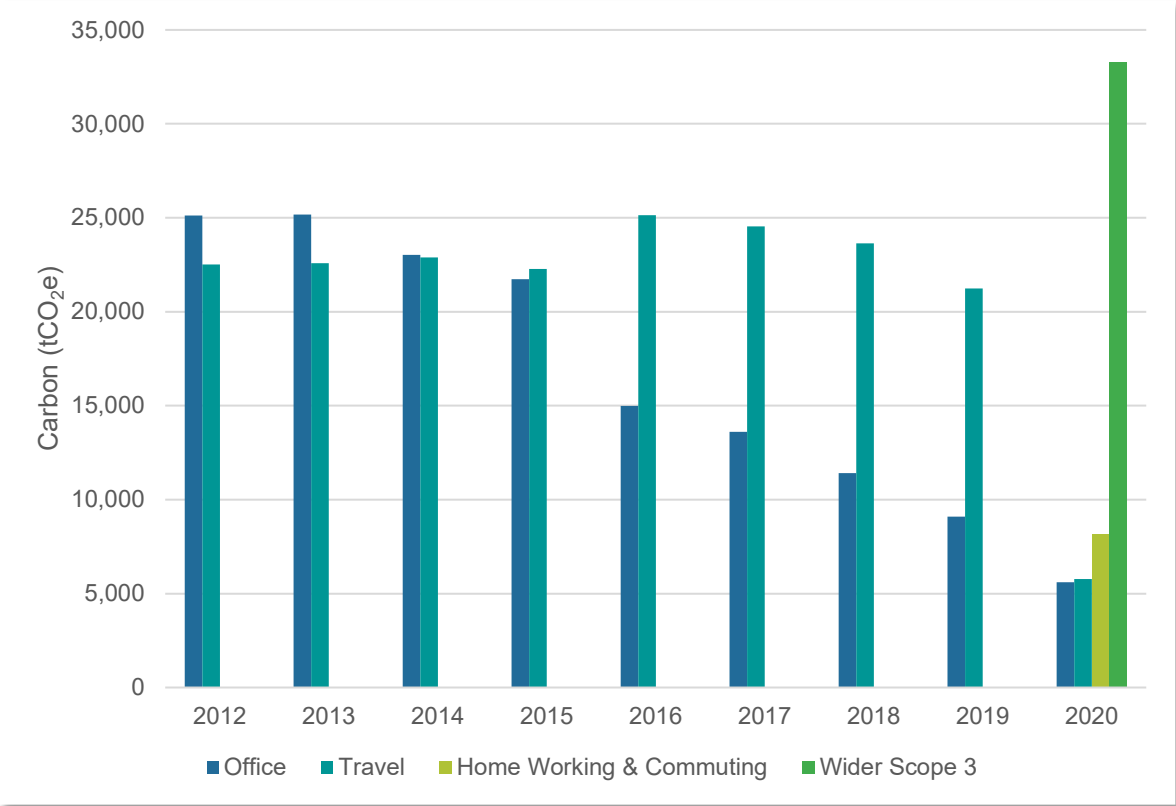
Carbon
neutral
2020

Net zero
2040

A steady reduction of our carbon footprint from 2012

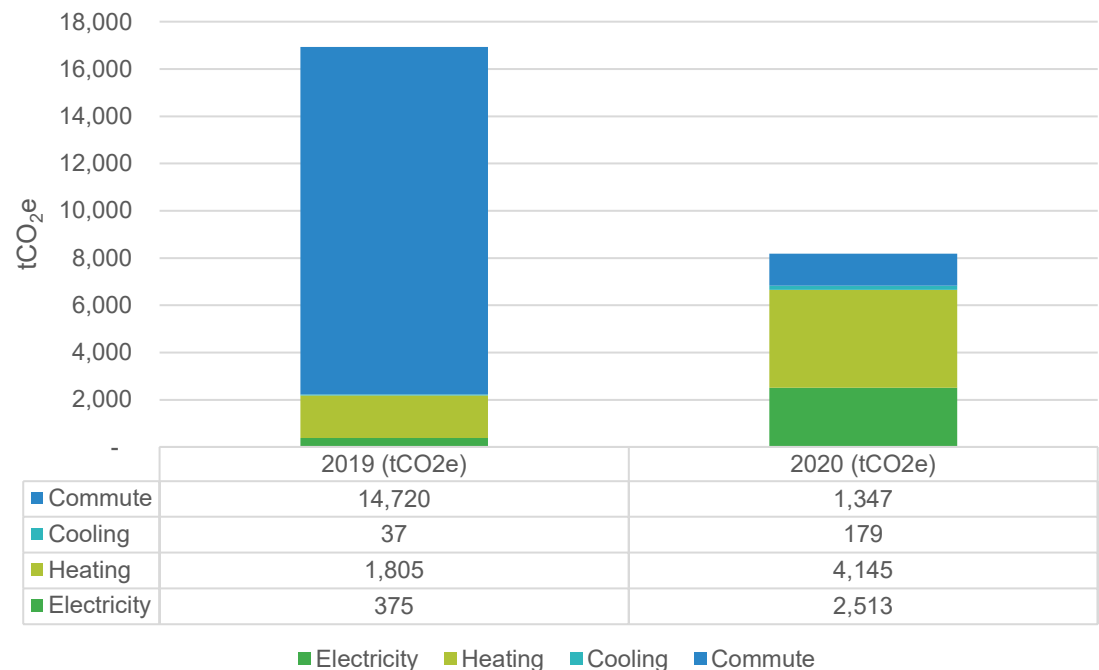
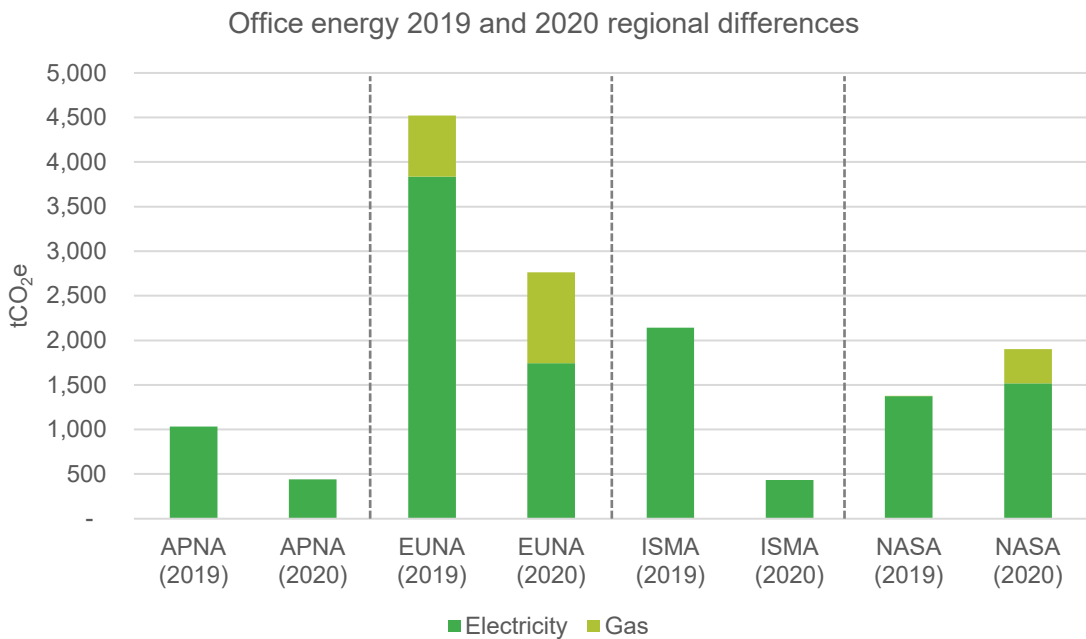
Targets:

- 5% reduction year on year per FTE, up to 2016
- 25% reduction by 2021 per FTE, baseline 2016
- 50% reduction by 2030 on absolute carbon



Impact of Covid-19

- Significant decrease in Group business travel from April onwards
- Decrease in office energy although variable across regions
- Inclusion of homeworking energy and commuting impacts for the first time via a staff survey
- Overall 2019 (pre-Covid) home emissions are higher due to the impact of employee commuting.



Activities

1

Continual improvement of our **carbon management process** and delivering the Group Carbon Footprint

2

Support regional uptake of **renewable energy** and reach 100% in UK, continue to drive energy efficiency across all offices

3

Update the **Group Travel Directive** and roll out regional behavioural change to support low carbon modes of transport

4

Investigate **alternative sources for procurement** to ensure only low carbon choices

5

Investigate **low carbon choices** and mechanisms to ensure staff can **reduce their personal emissions**

6

Continue to **offset** our residual emissions

7

Investigate a **carbon incentivisation scheme** supporting carbon reduction and innovation

8

Renew **PAS 2060 Carbon Neutral certification** and report on **Science-Based Targets**

MOTT MACDONALD

Engineering Consultancy

Tenant

Mott MacDonald is a global engineering, management, and development consulting firm focused on guiding clients through many of the planet's most intricate challenges. Their vision is to be the world's leading employee-owned consulting firm, opening opportunities with connected thinking to deliver optimum solutions and sustainable outcomes for clients.



216 buildings

373,032 m² total floor area

35,057 tCO₂e portfolio carbon emissions

15,966 employees

1 Commit

Commit to all assets being carbon neutral in operation by 2020 and to only occupy net zero carbon assets by 2030.

2 Disclose

Disclose emissions data publicly on website in line with the PAS 2060 Carbon Neutrality Specification.

3 Act

Having measured and assessed the company wide carbon impact, Mott MacDonald will now plan a package of measures to improve energy efficiency, purchase renewables and initiate other carbon offset projects taking into account the different asset locations across the globe.

4 Verify

Undertake independent third-party certification through the Carbon Trust UK to BSI PAS 2060 using relevant ISO standards.

5 Advocate

Advocate for wider industry change and continue to promote for zero carbon pathways for infrastructure clients. Expand efforts with the Climate Change Practice, creating a strategy for advocacy at the buildings scale.

M
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**MOTT
MACDONALD**

a member of UKGBC and
Green Building Council Australia.

EP 100 | °C

Carbon Neutral You launched

Carbon Neutral You: reduce then offset your carbon

👁 211

Go carbon neutral with Carbon Neutral You – you can start today by measuring your carbon with Pawprint app and joining a team.

22 Sep 2021
EUNA

Climate change is the defining challenge of our time, leading some to say that a 'do everything' approach is needed. We make carbon reductions through our projects and are carbon neutral in our operations, which gives us the opportunity demonstrate our integrity in our common purpose to create social value in everything that we do and shows our clients that this is beyond business for us.

As a business, we have been carbon neutral since 2020 and now you can be too. Carbon Neutral You is a toolkit that will support you on your personal journey to carbon neutrality with two simple steps: reduce and offset.



- **Reduce:** Calculate your carbon footprint with the [pawprint app](#), take actions to reduce your pawprint and log them. Join a team and complete the 'team action of the month' and share photos with us on the [How to Live Sustainably Yammer Group](#) using the tag #CarbonNeutralYou.
- **Offset:** Once you know your pawprint you can offset below with [Gold](#) and [VCS](#) certified offsets.

Sustainable Aviation Fuels

Corporate SAF Mandate being investigated



10% Sustainable Aviation Fuel by 2030

2030 Ambition Statement

Through the concerted effort of ambitious industry and state leaders, together we can put the global aviation sector on the path to net-zero emissions by 2050 by accelerating the supply and use of SAF technologies to reach 10% of global jet aviation fuel supply by 2030.

Companies who have already announced their own corporate SAF Mandates:



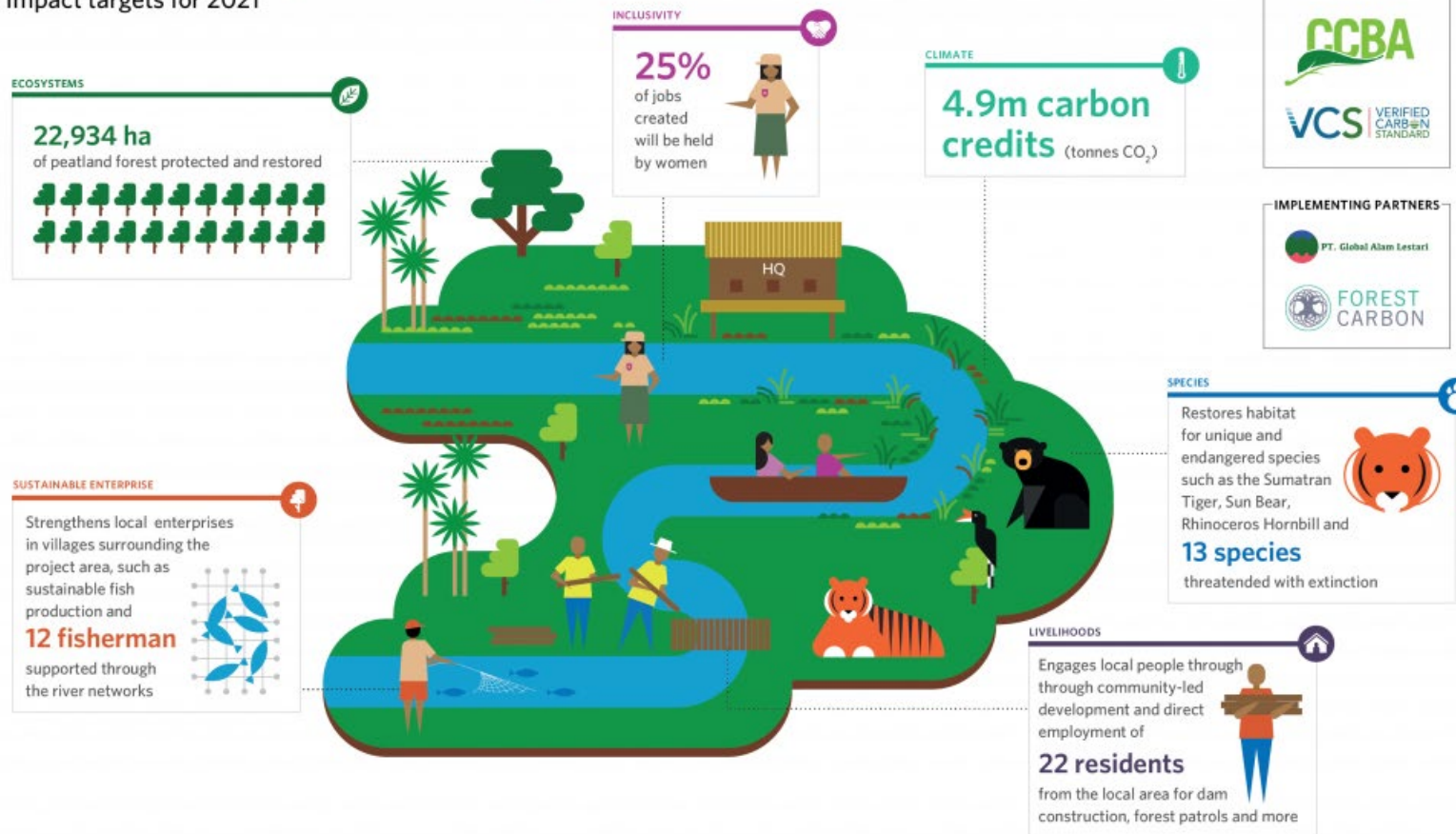
Mott MacDonald would be the first engineering consultancy to gain a SAF mandate

Offsetting Emissions

Partnered with ecosphere+

Sumatra Merang Peatland Project

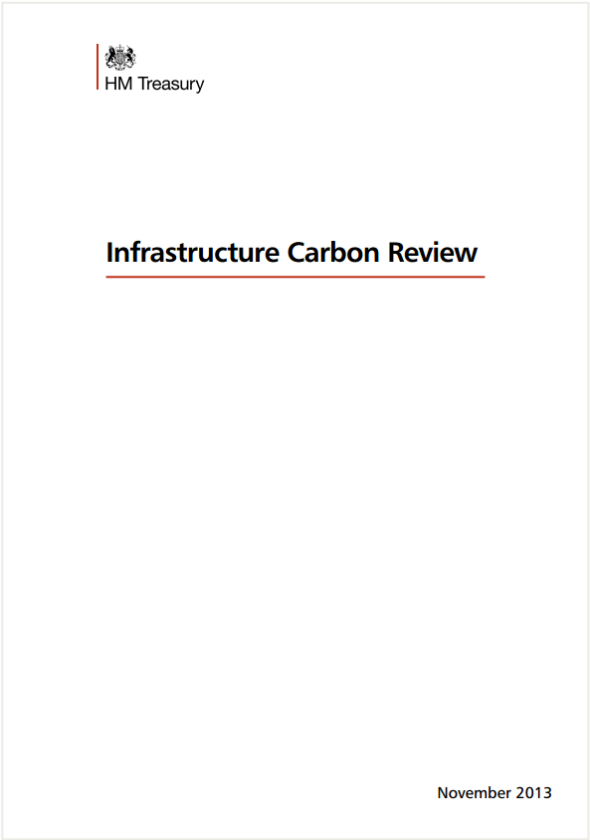
Impact targets for 2021



Our low carbon journey

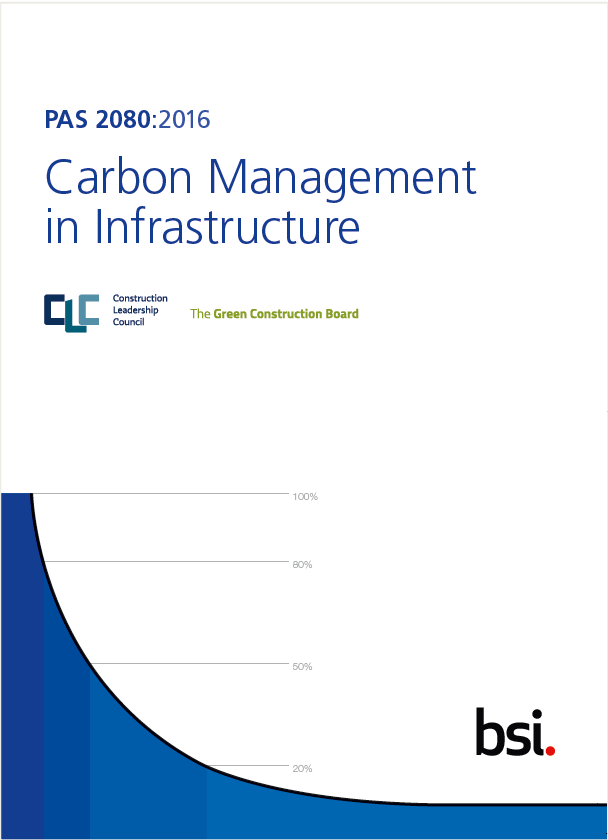
PAS2080 certified globally 5th year running

2013



Mott MacDonald

2016



2019



27 January 2022





Thank you

