

# Net Zero – An FM approach

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# DISCLAIMER

Before we proceed just a few points:

- I am not a Scientist!
- I'm just a Building Services Engineer trying to make the world a better place!
- I don't know if Climate Change is real?
- I do know:
  - We only have one planet!
  - We aren't doing a great job of looking after it.
  - We waste significant resources such as Energy & Water.
  - We produce significant Waste.

# AGENDA

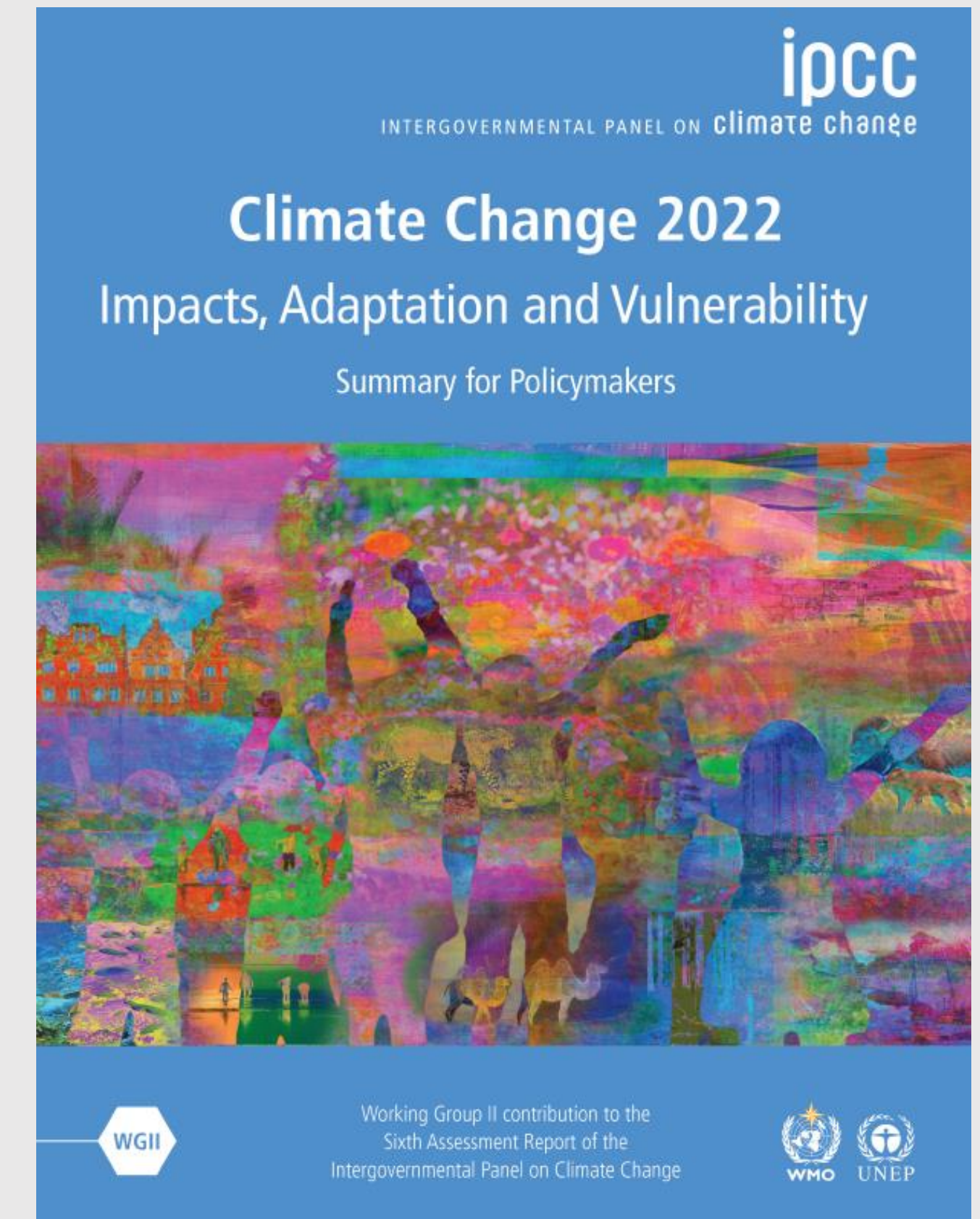
Today's presentation will provide background on:

- Introduction – Avoiding Climate Catastrophe.
- What is a Net-Zero Target.
- Why Implement a Net-Zero Target.
- What are Science Based (Net-Zero) Targets.
- How are Science Based Net-Zero Targets Determined.
- How to Implement a Net-Zero Target for your Building/Facility or Organisation.
- Next Steps.



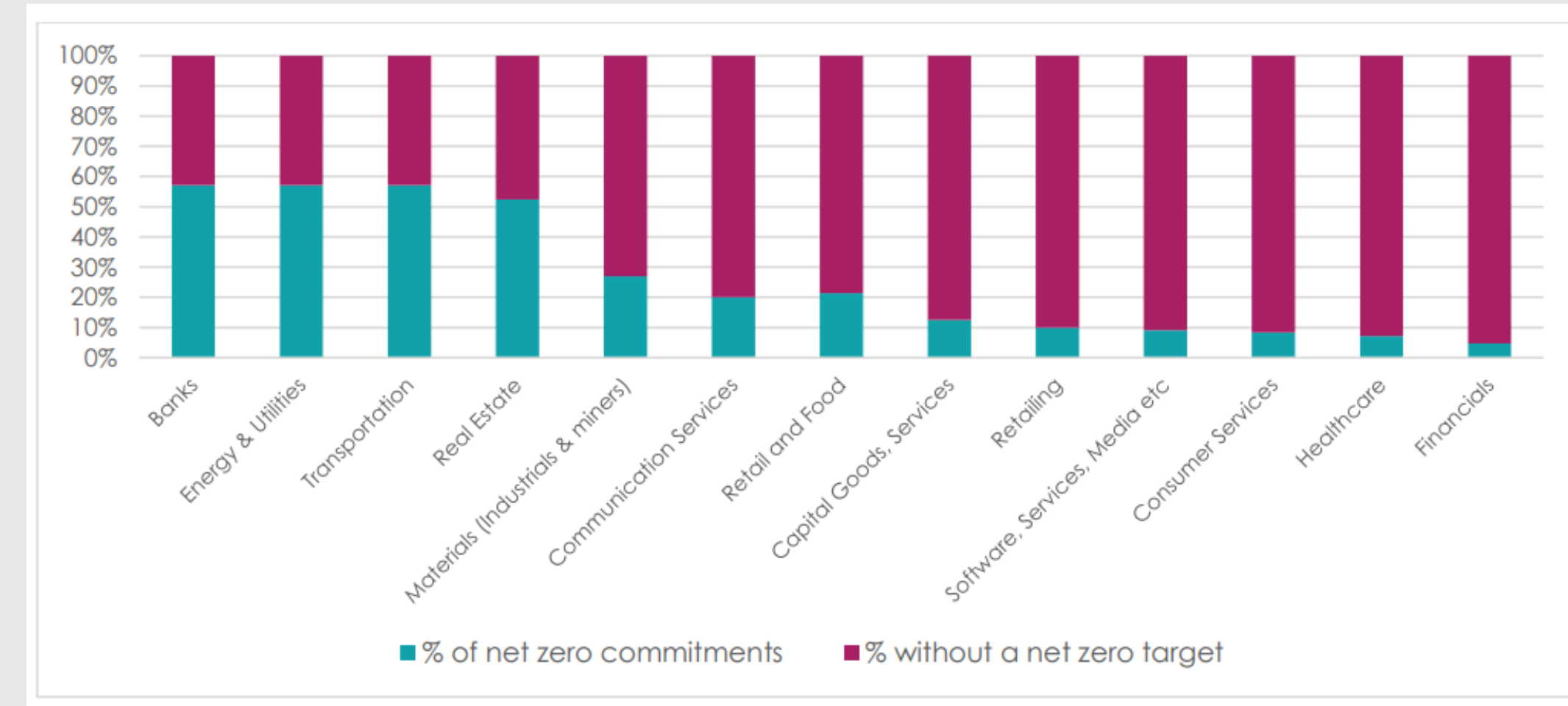
# INTRODUCTION - AVOIDING CLIMATE CATASTROPHE

- The most recent reports from the (Intergovernmental Panel on Climate Change) IPCC showed human activities have caused approximately 1.0°C of global warming above pre-industrial levels. This is projected to increase to 1.5°C between 2030 and 2052 based on current rates.
- Global warming (reaching 1.5 degrees) would cause unavoidable risks to health, livelihoods, food security, water supply, human security, and economic growth.
- To avoid going above 1.5 degrees, we need to reduce global CO<sub>2</sub> emissions by about 45% from 2010 levels by 2030 and reach Net-Zero around 2050.

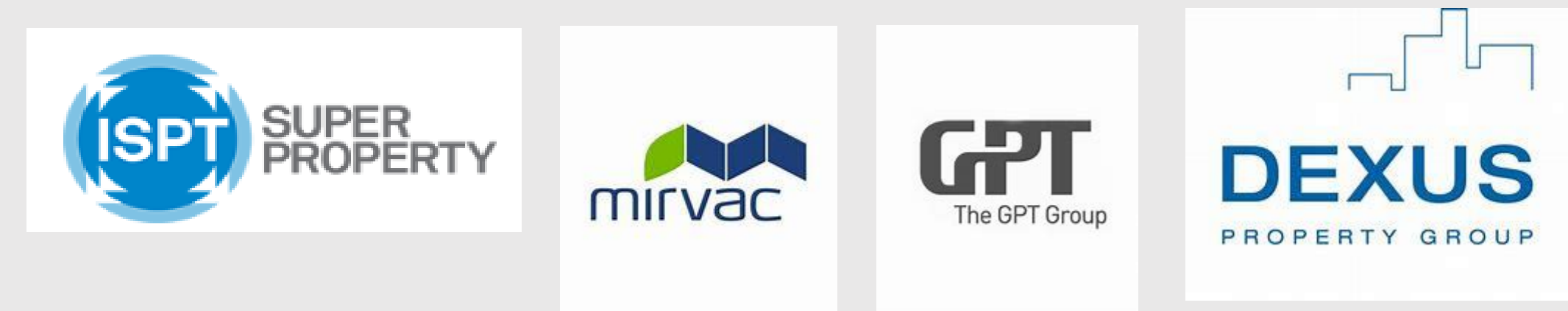


# NET-ZERO TARGETS

- As the world respond to the threat of global warming and to minimise climate change risks, more and more organisations are announcing their own net zero targets.
- Setting a Net-Zero target is an important first step in your organisations journey and commitment to achieving a more sustainable planet
- Any organisation can set a Net-Zero target but many do not understand what “Net-Zero” actually means and what is the correct process to ensure the target is aligned with the current climate science to limit global warming to above 1.5 degrees and reach net-zero by 2050.



Increasing net zero commitment by the ASX200



Many of Australia's largest property firms are aiming for Net-zero emissions by 2030 or sooner



# WHY SET A NET-ZERO TARGET FOR YOUR BUILDING OR ORGANISATION

- A Net-Zero target provides a commitment to collective effort around emission reduction activities.
- Promotes action. Reducing emissions to near zero by 2050 will take considerable time and effort and organisations need to start acting now.
- Provides enhanced credibility and brand reputation.
- Drives innovation and create competitive advantage.
- Increases resilience given likely future regulation.
- Increases investor confidence.

# SCIENCE BASED vs NON SCIENCE BASED (NET-ZERO) TARGETS

## Non-Science Based (Net-Zero) Targets

### Definition

- All carbon emissions have been reduced to a net result of zero. Carbon produced is balanced by carbon removed / avoided) by a target date specified by your organisation

### Background

- Net-Zero targets are effectively a commitment to achieve Carbon Neutrality as opposed to achieving the actual emissions reductions required

### Certification Organisations

- Climate Active (Australia)
- Certification pathways via NABERS, Greenstar Performance
- Toitu (New Zealand / Australia)

### Emission Reduction Requirements

- Organisations must demonstrate they are actively reducing their emissions

### Use of Offsets

- Carbon offsetting can be used to reach the 'Net-Zero' total.
- Many certification schemes require offsets projects to be verified by independent auditors through internationally recognised standards (e.g. Climate Active).

### Positives

- Better understand and manage carbon emissions
- Organisations can achieve certification in a relatively short timeframe
- Certification methods are based on independent standards (e.g. Climate active)

### Negatives

- Net-Zero targets can be inconsistent across organisations and not always inline with current climate science
- There is no universally agreed emissions boundary. Most frameworks differ in their efforts to reduce Scope 3 emissions such as emissions belonging to their supply chain and customers.
- Carbon offsets allow an organisation to continue emitting at a continued rate as long as they pay the cost of the equivalent carbon credits. There is no global regulation of carbon offsets and there are significant doubts whether all offset products achieve a net reduction in global emissions
- No specified timeframe - A target of Net-Zero by 2075 for example is not compatible and may be too little too late.

# SCIENCE BASED vs NON SCIENCE BASED (NET-ZERO) TARGETS

## Science Based (Net-Zero) Targets

### Definition

- Carbon emissions are reduced in a **pathway** that is aligned with current climate science which is to limit global temperature rise to 1.5C above pre-industrial levels and reach Net-Zero CO2 emissions by 2050

### Background

- Science based targets define the type of approach that will be taken over a long time period.

### Certification Organisations

- Science Based Target Institute (SBTi)

### Emission Reduction Requirements

- Requires setting of both near-term (e.g. 2030) and a long-term emission reduction targets (e.g. 2050)

### Use of Offsets

- Carbon offsetting is not permitted

### Positives

- Ensures your targets and calculations are aligned with the current climate change science.
- Provides a common definition and framework
- Each target is independently validated by a team of experts
- Provides clarity around the emissions boundary and scope 3 emissions
- Avoids Carbon Offsetting

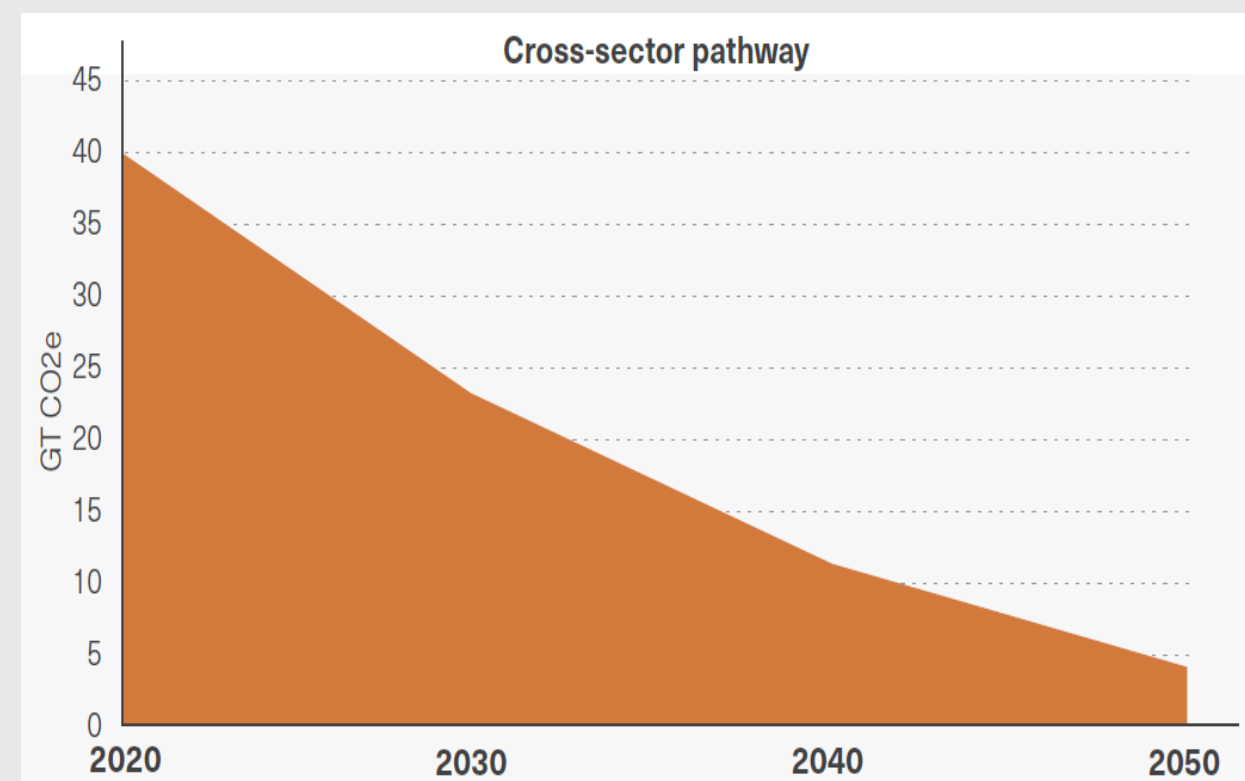
### Negatives

- Can be expensive for organisations to commit

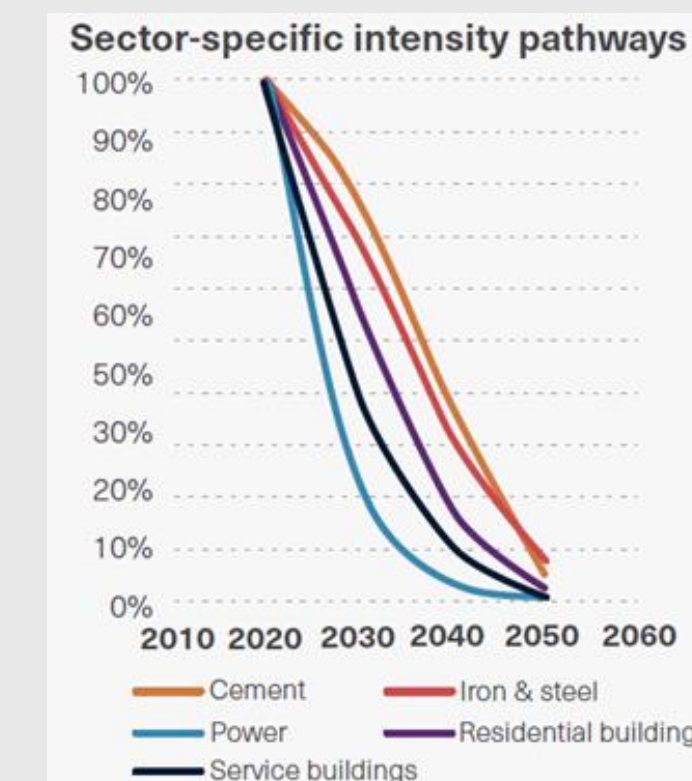


# HOW ARE SCIENCE BASED TARGETS DETERMINED

- Modelling by the IPCC has determined that global emissions should be no more than 500 GT of CO<sub>2</sub> to limit global warming to 1.5°C and avoid catastrophic climate breakdown (IPCC, 2021)
- Using this concept, the science-based target initiative (SBTi) has determined a one-size-fits-all method, called the Cross Sector Pathway, that companies can use to set targets deliver absolute emissions reductions in line with global decarbonization pathways.
- Furthermore, the SBTi has taken this carbon budget and applied it to certain industries such as the power industry to determine a carbon budget for these sectors to limit global warming to 1.5°C.



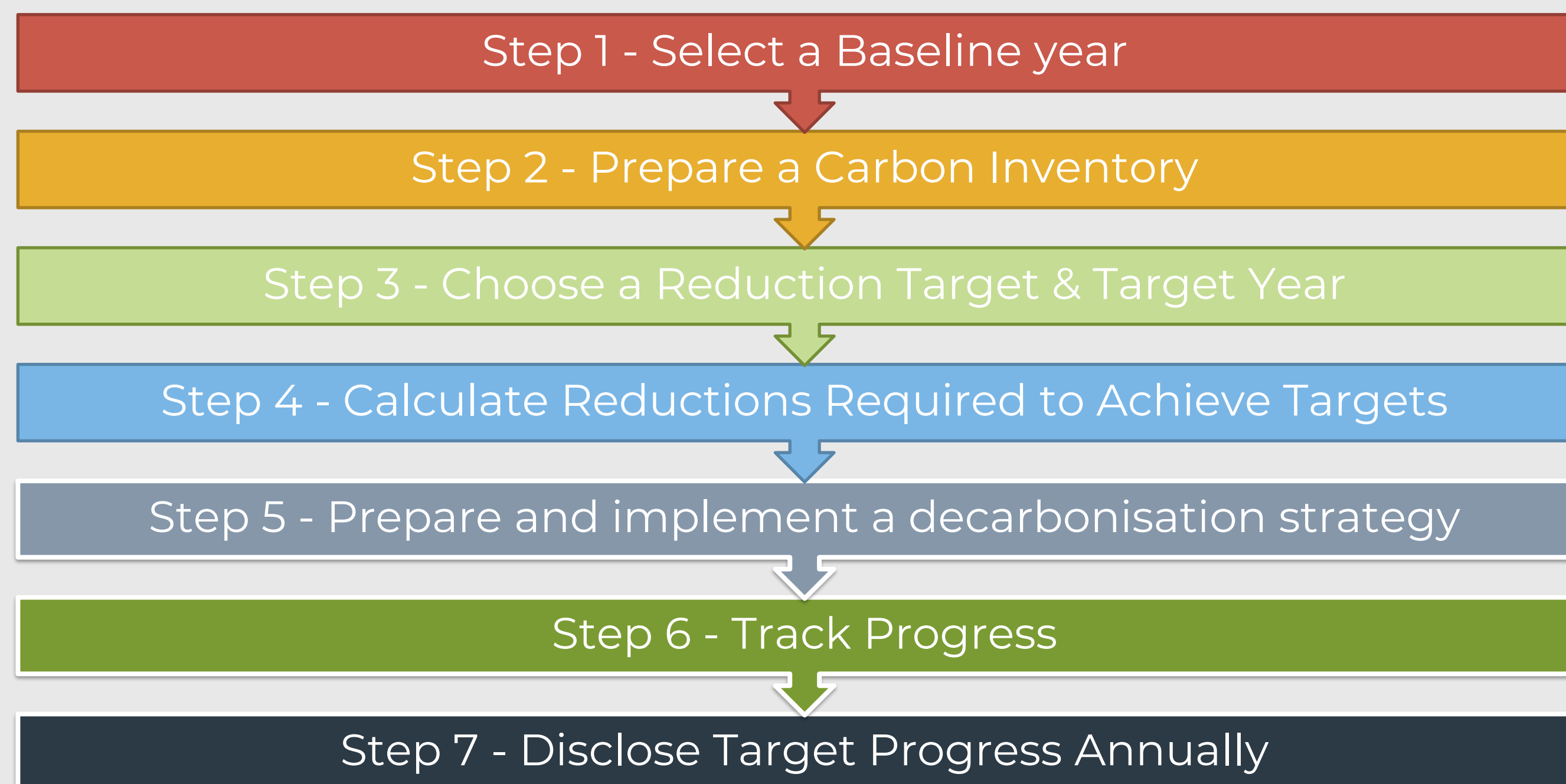
Using the Cross Sector Pathway an organisation or pathway must reduce near-term emissions by at least 42% by 2030 from baseline year and at least 90% by 2050.



Using the Sector-specific pathway a building or organisation must follow reduction targets set for their specific industry

# HOW TO IMPLEMENT A NET-ZERO TARGET

Whether you choose a science based approach or not there are some key steps in setting a Net-zero target for your building or organisation. These include:

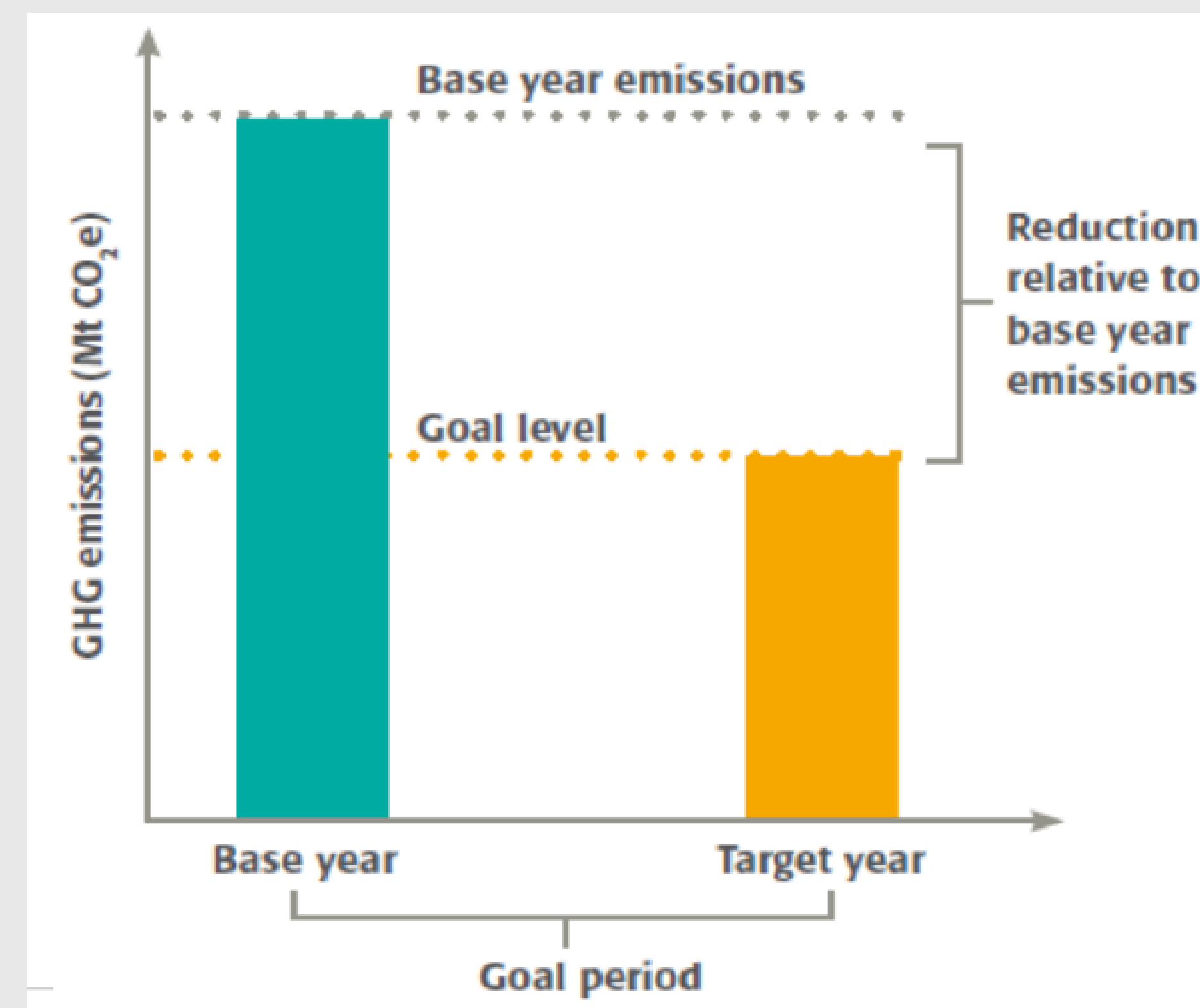


Note: these steps maybe different depending on your progress so far and which reporting and certifications schemes are being followed

# HOW TO IMPLEMENT A NET-ZERO TARGET

## Step 1 - Select a baseline year

- Serves as a reference point for buildings or organisations to understand and track their emissions performance over time and to calculate their Net-Zero Targets.
- Important to choose the correct year as it will effect ability to achieve your Net-Zero target.
- Generally based on the most recent year of verifiable carbon emissions data or an average of historical data over multiple years (base period).



*“Company X commits to reduction scope 1,2+3 emissions 90% by 2035 from a 2018 baseline year”*

# HOW TO IMPLEMENT A NET-ZERO TARGET

## Step 2 - Prepare a Carbon Inventory



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Whether its for your building or for your organisation you will need to prepare an accurate summary of your annual emissions.

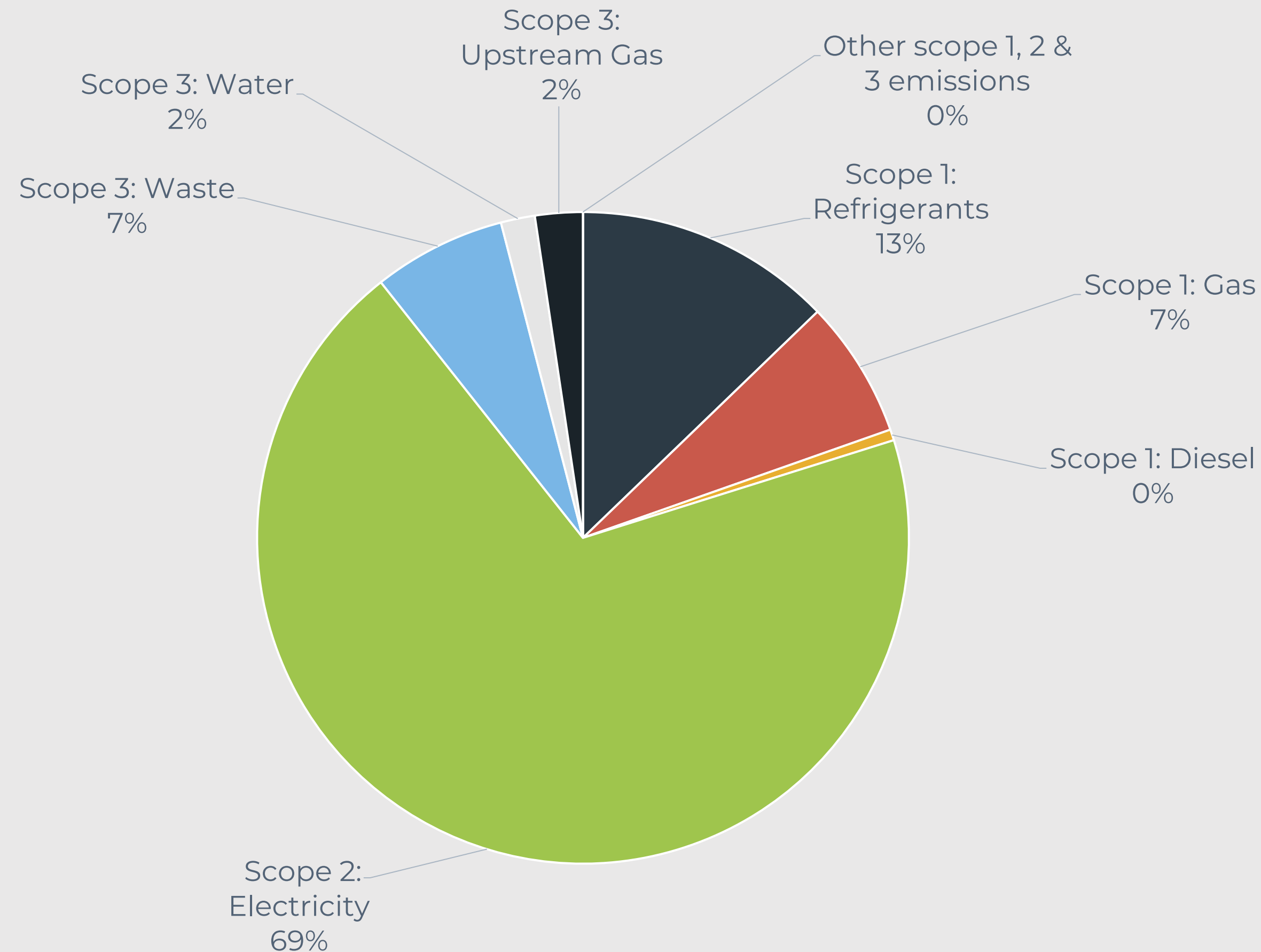
- Should be prepared in accordance with international measurement standards such Greenhouse Gas (GHG) Protocol or ISO14064-1
- Need to determine your emissions boundaries for Scope 1, 2 & 3 emissions
- Determine reporting requirement and formats required (e.g. GRI, TCFD, CDP, SBTi)
- Use specialist consultants for support and get it verified by a third party

Metric	FY18	FY19	FY20	FY21	Baseline Comparison		
					FY20	FY21	% change over 12 month period
<b>Net Lettable Area (Operationally Controlled)</b>	89,144	151,789	151,789	156,714	151,789	156,714	3%
<b>Energy Consumption - Operationally Controlled - (MWh)</b>							
Diesel	52	56	143	119	143	119	-17%
Natural Gas	354	315	252	311	252	311	24%
Electricity (grid)	6,637	8,123	7,704	6,671	7,704	6,671	-13%
Proportion of energy consumption from renewable sources (%)	0	0	0	0	0	0	0
<b>Total energy consumption (MWh)</b>	<b>7,043</b>	<b>8,495</b>	<b>8,099</b>	<b>7,101</b>	<b>8,099</b>	<b>7,101</b>	<b>-12%</b>
Energy intensity (MJ/m <sup>2</sup> )	284	201	182	163	182	163	-15%
<b>Greenhouse gas emissions (tCO<sub>2</sub>-e)</b>							
Direct (Scope 1)	272	281	611	527	611	527	-14%
Indirect (Scope 2)	4,955	6,038	5,693	4,897	5,693	4,897	-14%
<b>Total Scope 1 &amp; 2 emissions</b>	<b>5,227</b>	<b>6,319</b>	<b>6,304</b>	<b>5,425</b>	<b>6,304</b>	<b>5,425</b>	<b>-14%</b>
Greenhouse gas emissions intensity (kg CO <sub>2</sub> -e/m <sup>2</sup> )	58.64	41.63	41.53	34.62	41.53	34.62	-17%
<b>Water (m<sup>3</sup>)</b>							
Potable water	49,432	92,715	94,218	80,802	94,218	80,802	-14%
Proportion of water consumption from recycled water sources (%)	0	0	0	0	0	0	0
<b>Total water consumption</b>	<b>49,432</b>	<b>92,715</b>	<b>94,218</b>	<b>80,802</b>	<b>94,218</b>	<b>80,802</b>	<b>-14%</b>
Water intensity (m <sup>3</sup> /m <sup>2</sup> )	0.55	0.61	0.62	0.52	0.6	0.2	-17%



# HOW TO IMPLEMENT A NET-ZERO TARGET

## Typical Emissions Profile for an Office Building



### Scope 1 – Direct

- 7% - On-site fuel (Gas)
- <1% - On-site fuel (Diesel)
- 13% - Refrigerants

### Scope 2 – Indirect

- 69% - Electricity

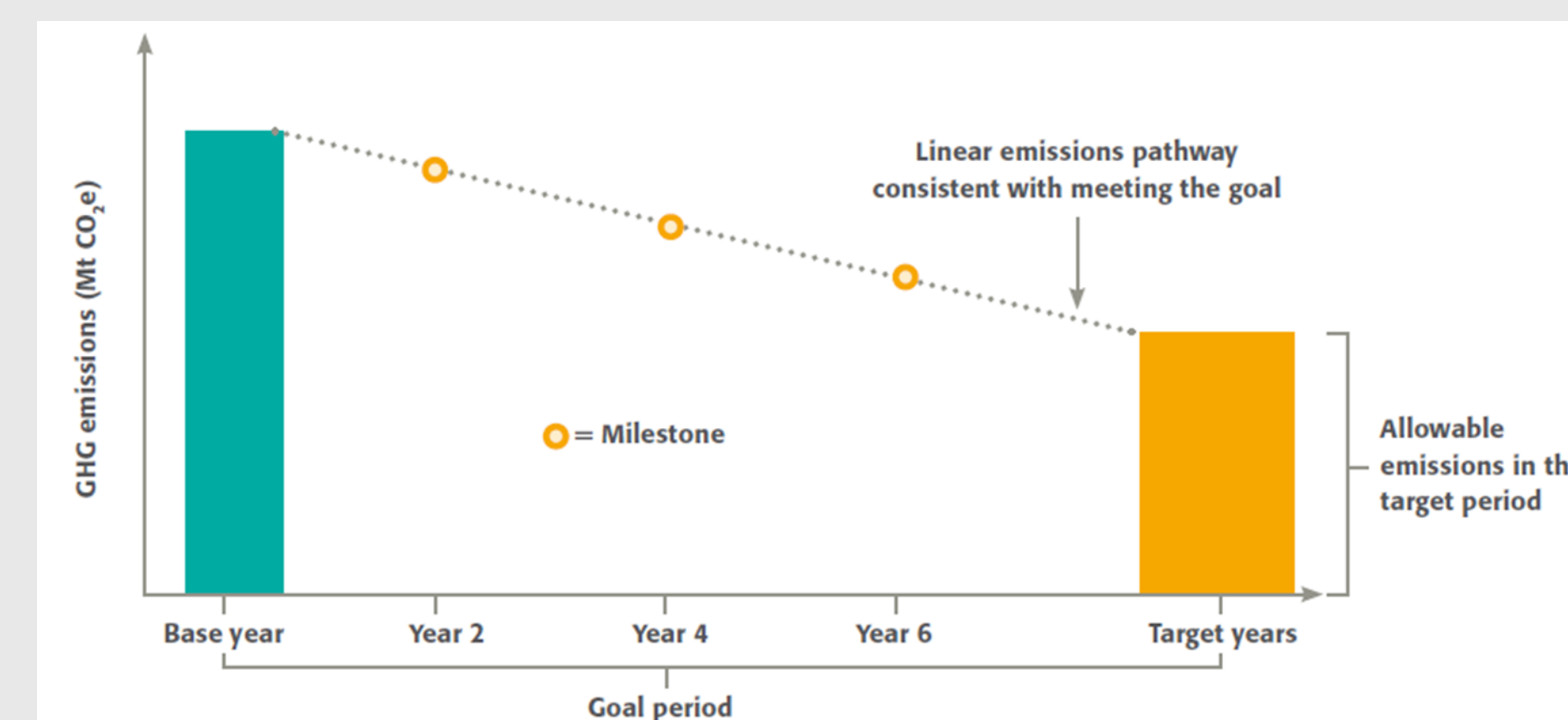
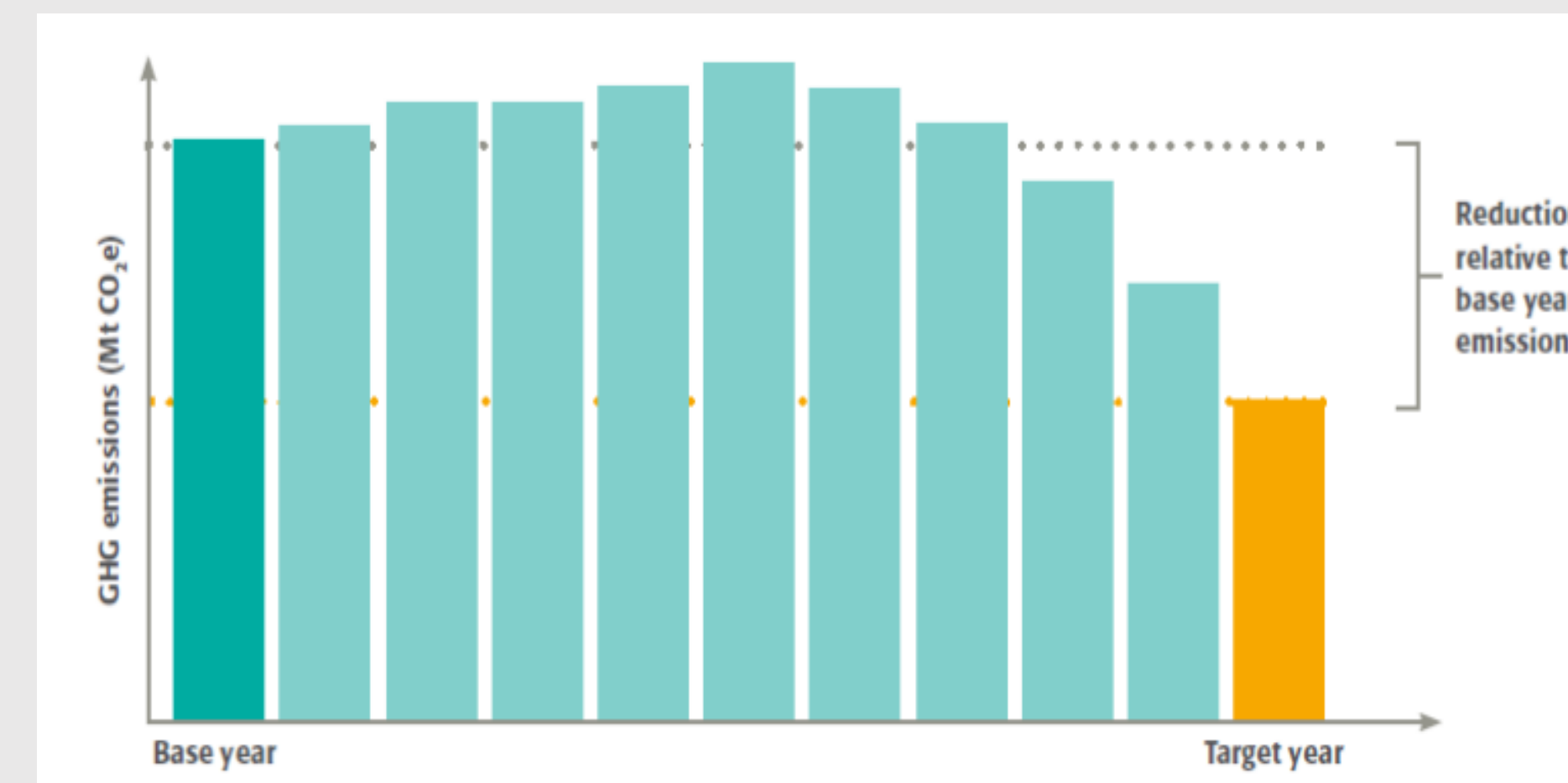
### Scope 3 – External

- 7% - Waste
- 2% - Water and Waste Water
- 2% - Upstream energy

# HOW TO IMPLEMENT A NET-ZERO TARGET

## Step 3 – Develop a Reduction Target and Target Year

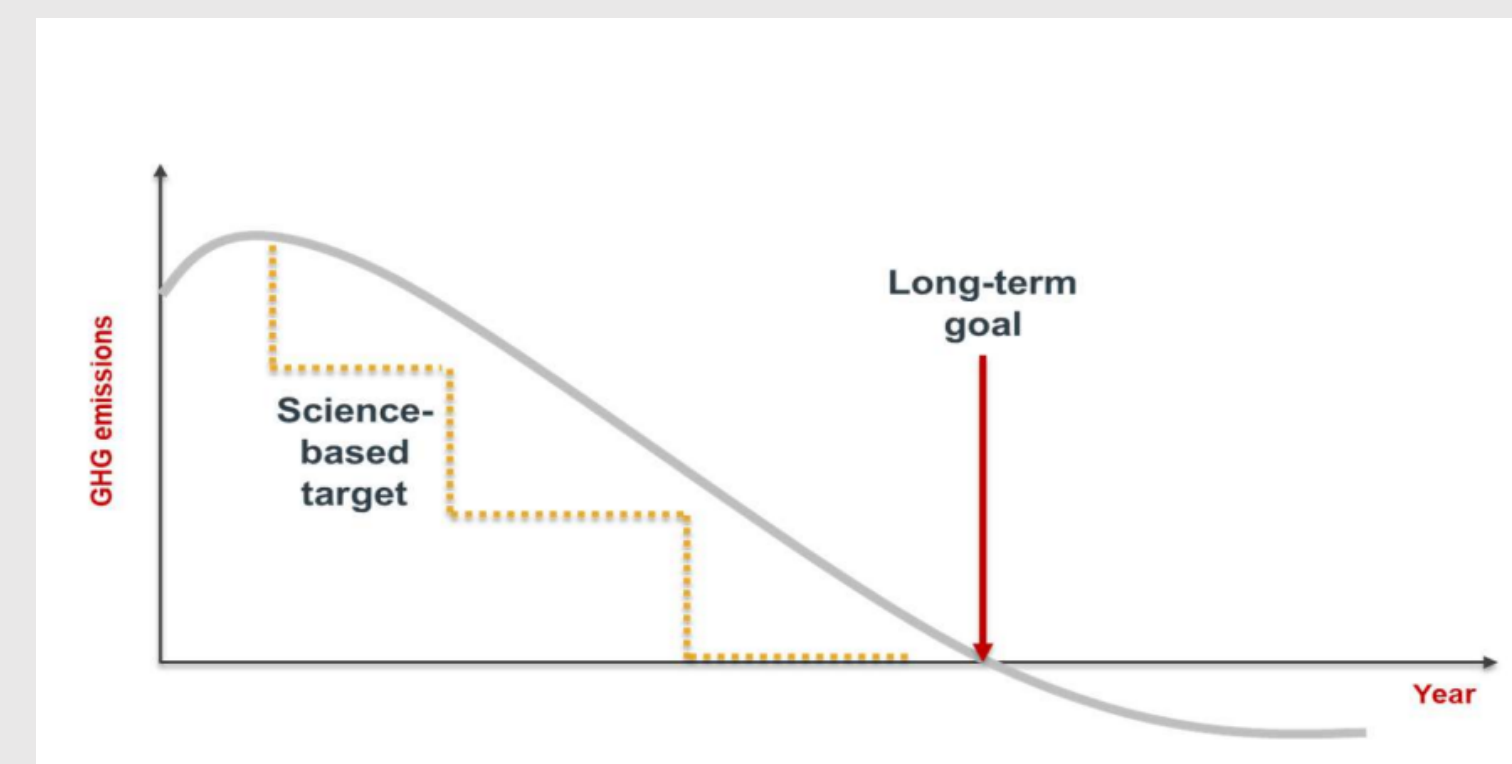
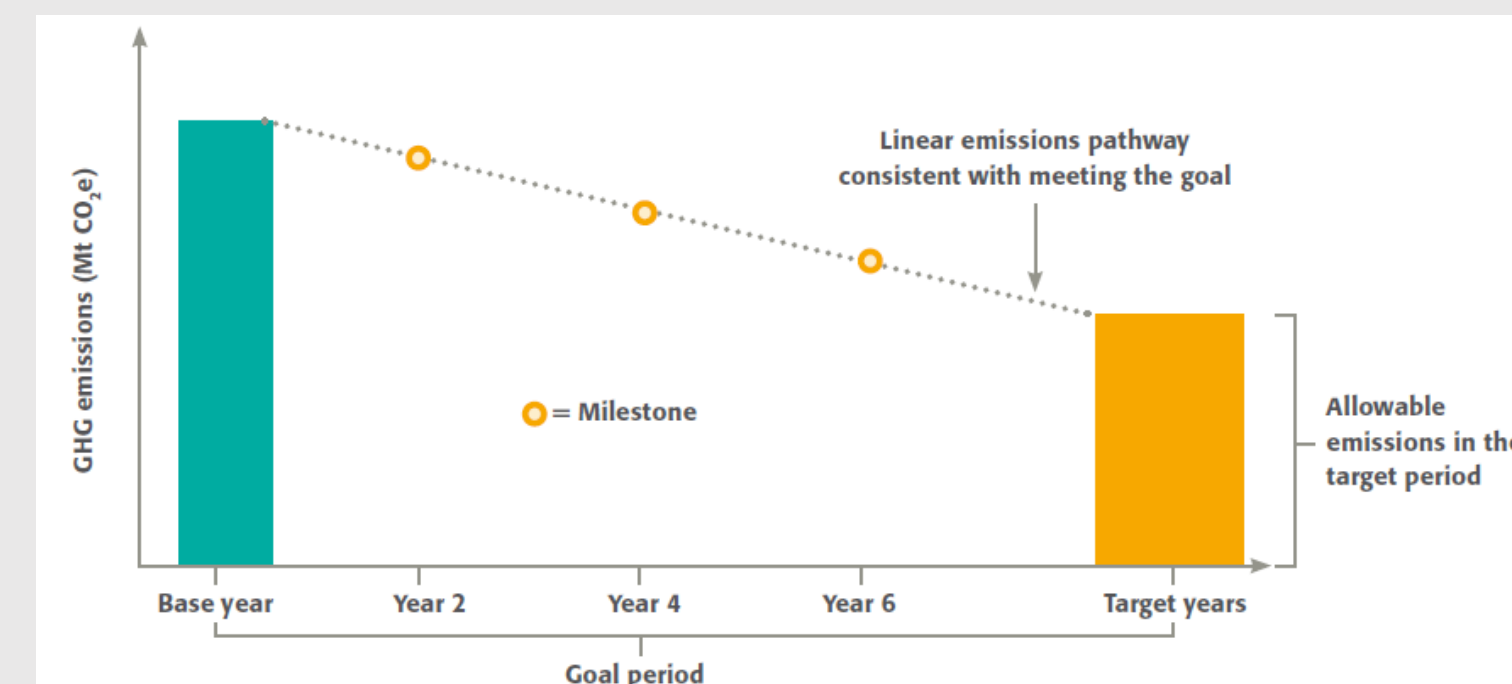
- Net-Zero Targets can be grouped into single year or multi year targets:
  - Single year (usually long-term targets)
  - Multi-Year (including near-term and long-term targets)
- Adopting multi-year targets will ensure a better chance of limiting cumulative emissions over the target period.
- Multi-year targets also facilitate understanding of anticipated emissions levels over multiple years and provides more clarity about the expected emissions pathway



# HOW TO IMPLEMENT A NET-ZERO TARGET

## Step 4 - Calculate Reductions Required to Achieve Targets

- Calculating your emissions budget for your building or organisation is important as it provides critical information for:
  - Decision making
  - Designing mitigation strategies,
  - Assessing progress during the goal period
  - Assessing goal achievement
- Near term targets should be set 5-10 years from the baseline year and match current climate science which equates to a 45% reduction by 2030 against a 2010 baseline year.
- Calculating long-term targets is relatively simple if the science based targets approach is adopted. Organisation are required to reduce Scope 1, 2 & 3 emissions to at least 90% by 2050.

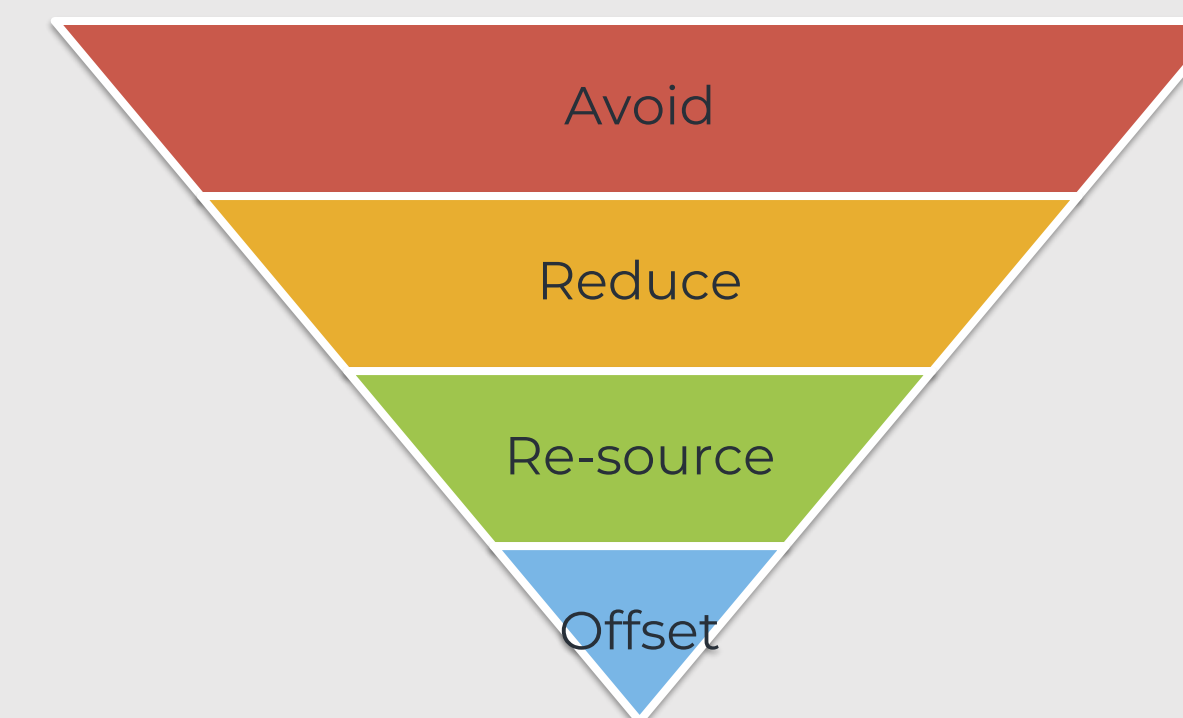


# HOW TO IMPLEMENT A NET-ZERO TARGET

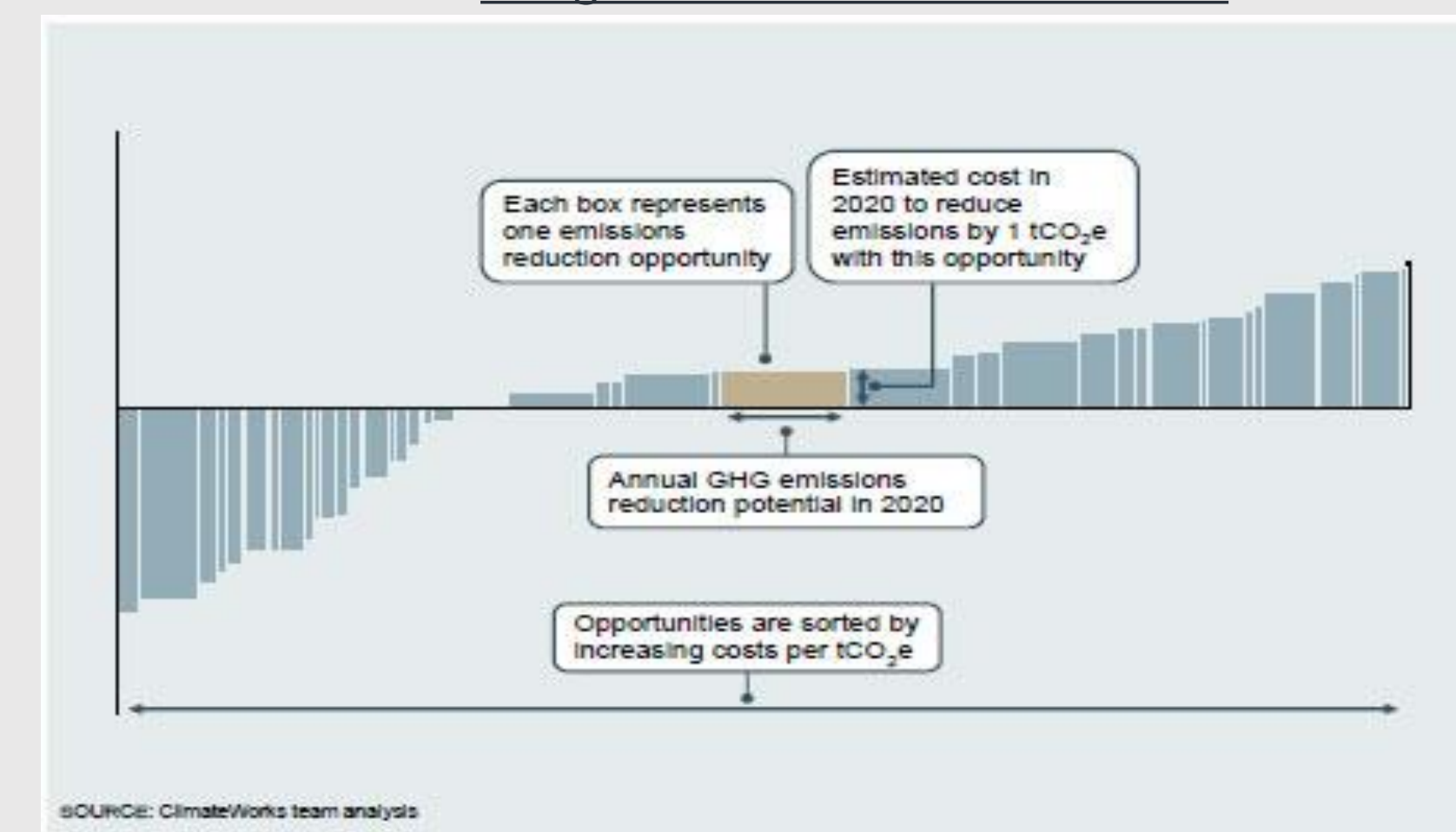
## Step 5 - Prepare and implement a decarbonisation strategy

- Identify emission reduction activities:
  - Improve Energy Efficiency – Operational + Capital Expenditure.
  - Work towards Electrification (e.g. removal of gas services)
  - Investigate and deploy onsite Renewables.
  - Improve water Efficiency (Scope 3 emissions).
  - Low Global Warming Potential (GWP) Refrigerants.
  - Reduce Waste to Landfill.
  - Procure off-site renewables or green electricity.
  
- Prioritised implementation approach activities based on organisational goals and mitigation hierarchy.
  
- Rank activities (marginal abatement cost).
  
- Establish ongoing monitoring and reporting.

Carbon Reduction Hierarchy

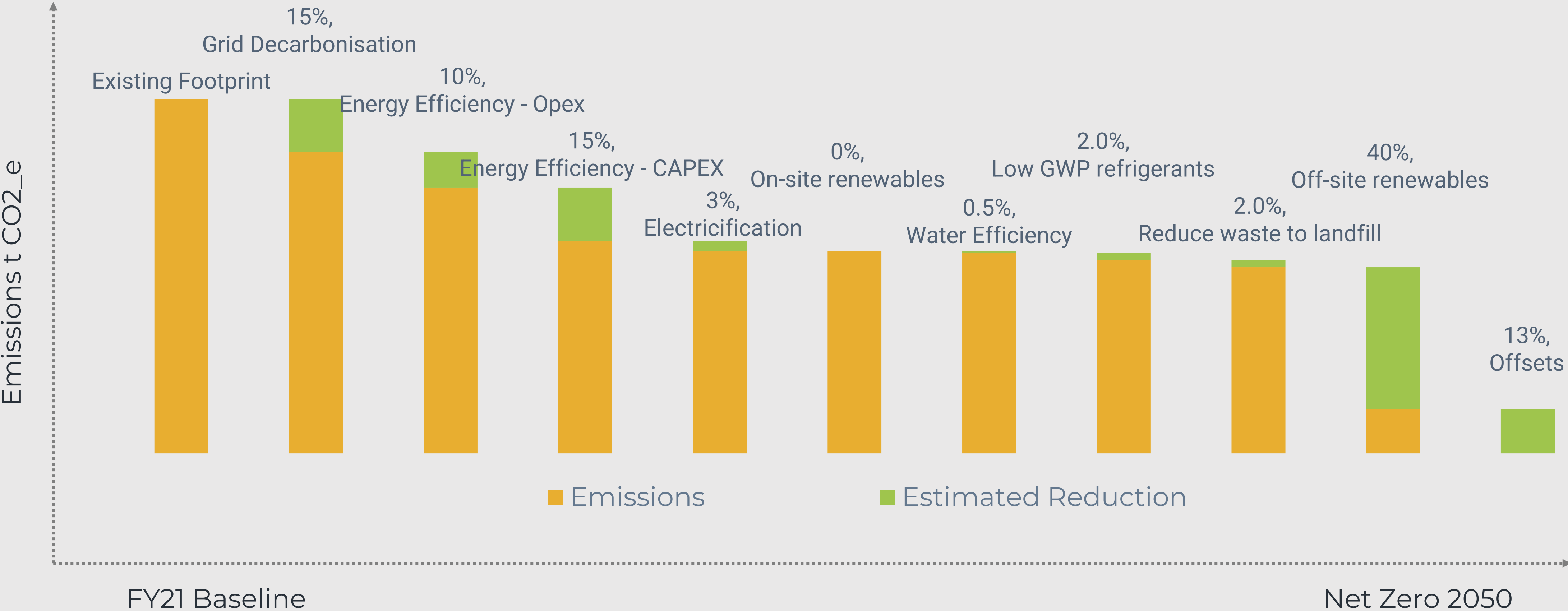


Marginal Abatement Cost Curve





# THE DECARBONISATION JOURNEY



# HOW TO IMPLEMENT A NET-ZERO TARGET



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## Step 6 - Track & Report Progress

- Undertake environmental benchmarking (NABERS, Greenstar Performance).
- Expand your monthly reporting to include emissions performance measurement.
- Keep track of emissions reductions against targets.

## Step 7 – Publicly Disclose Target Progress Annually

- The performance of your individual buildings may form part of the results in your organisation’s Annual sustainability report.

### Progress against commitments and performance targets

#### Progress: Achieve net zero emissions by 2022 across managed portfolio

Dexus committed to achieve net zero emissions across its managed portfolio by 2022. This year, Dexus advanced its original 2030 target deadline which was set in FY18. The table below reports on Dexus's total Scope 1, 2 and 3 (market-based) emissions, voluntary abatement, and total net greenhouse gas emissions since FY18.

Net zero by 2030 progress (t CO <sub>2</sub> -e)	FY18	FY19	FY20	FY21	FY22 target
Total Scope 1 & 2 market-based GHG emissions	146,323	137,778	125,378	101,010	
Scope 3 market-based GHG emissions	37,594	34,043	27,844	20,281	
Voluntary abatement via Certified Offsets	-3,000	-3,725	-5,000	-2,500	
<b>Total net greenhouse gas emissions</b>	<b>180,917</b>	<b>168,096</b>	<b>148,223</b>	<b>118,791</b>	<b>0</b>

#### Progress: Scope 1 and 2 science-based target, 70% reduction by 2030 against FY18 baseline

Dexus has received certification from the Science Based Targets initiative that its Scope 1 and 2 target of a 70% reduction by 2030 (FY18 baseline) is aligned with the ambitions of the UN Paris Agreement. Dexus's science-based target is part of Dexus's pathway to achieve net zero emissions by 2030.

Scope 1 & 2 science-based target progress	FY18	FY19	FY20	FY21	FY30 target
Dexus Scope 1 emissions (t CO <sub>2</sub> -e)	18,912	17,712	17,271	16,361	
Dexus Scope 2 market-based emissions (t CO <sub>2</sub> -e)	127,412	120,066	108,107	84,648	
Dexus Scope 1 & 2 market-based emissions (t CO <sub>2</sub> -e)	146,323	137,778	125,378	101,010	44,396
<b>Net lettable area (sqm)</b>	<b>2,843,921</b>	<b>2,845,443</b>	<b>2,929,678</b>	<b>2,919,856</b>	

Climate Active Public Disclosure Statement  
Australian Government  
Climate Active Public Disclosure Statement

ISPT SUPER PROPERTY  
Climate Active  
An Australian Government Initiative

NAME OF CERTIFIED ENTITY: ISPT Pty Ltd  
REPORTING PERIOD: 1 July 2019 – 30 June 2020

Declaration  
To the best of my knowledge, the information provided in this Public Disclosure Statement is true and correct and meets the requirements of the Climate Active Carbon Neutral Standard.

Signature Daryl Browning	Date 06-Nov-20
Name of Signatory Daryl Browning	
Position of Signatory CEO	

Australian Government  
Department of Industry, Science, Energy and Resources

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Climate Active  
Carbon Neutral BUILDING

6  
NABERS ENERGY

The Trustee for Workzone West Syndicate  
achieved a 6 star NABERS Energy Base Building rating for

Workzone West  
202 Pier Street  
PERTH WA 6000

This building is Carbon Neutral Certified.  
Rating valid until February 2023

NABERS  
An Australian Government Initiative  
Climate Active  
GOVERNMENT OF WESTERN AUSTRALIA

NABERS is a national initiative managed by the New South Wales Government - Department of Planning, Industry and Environment on behalf of the Commonwealth, State and Territory Governments. This NABERS Rating is based on operational and quantitative data collected for the rated site. More stars indicate better performance and environmental outcomes.

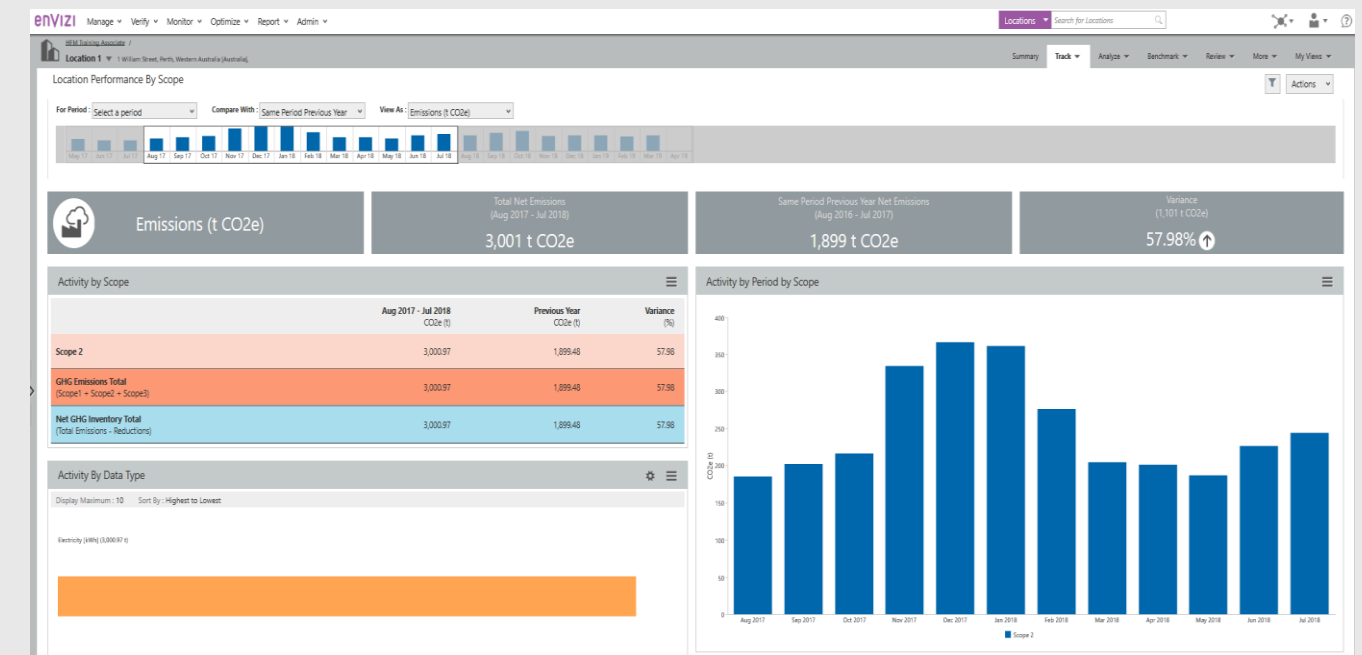
# THE IMPORTANCE OF A ROBUST DATA CAPTURE PLATFORM



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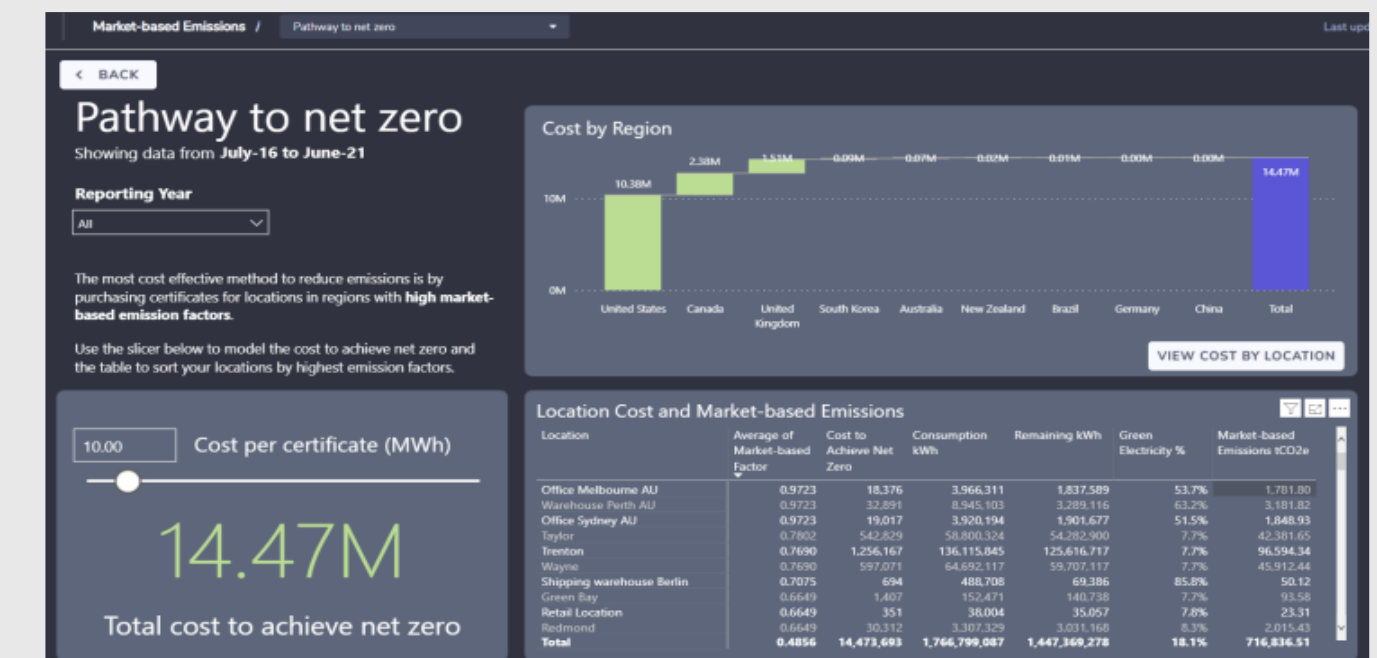
There are a number of software solutions in the market which provide holistic emissions and sustainability data collection and reporting. Benefits of using an industry recognised emissions data capture platform include:

- Can streamline your emissions and sustainability data capture.
- Report with confidence.
- Drive enterprise-wide engagement.
- Focus on strategy.
- Simplify audit and assurance.
- Manage and track KPIs.



Many of these platforms link with emissions & ESG reporting schemes such as:

- Carbon Disclosure Project (CDP).
- Task Force for Climate Related Disclosures (TCFD).
- Global Real Estate Sustainability Benchmark (GRESB).
- Global Reporting Initiative (GRI).
- National Greenhouse and Energy Reporting (NGER).





# NET-ZERO CERTIFICATION OPTIONS

There is a need to ensure your claim to achieve Net-Zero is based on a credible and recognisable methodology.

Some examples of market based accreditation standards include:

- Climate Active (Carbon Neutral).
- Toitu Envirocare.
- Science Based Targets.
- World Green Building Council.





# PROCUREMENT OF OFFSETS



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OFFSET TYPE	OFFSET PROJECT	LOCATION	VINTAGE	UNIT	COST \$ / UNIT
Renewable Energy	Renewable Energy (Wind)	Asia	2010	VCS/CDM	\$5.80
Renewable Energy	India Wind	India	2012	CER	\$7.20
Renewable Energy	China Wind	China	2012	CER	\$7.20
Renewable Energy	Wind Farm (India / Turkey / China)	Indonesia	2015-2017	VCS4 - VCU	\$8.50
REDD+	Rainforest Protection / Renewable Energy (Wind)	Asia		VCS/CDM	\$12.00
Renewable Energy	India Biomass	India		VCS	\$12.90
REDD+	Kariba Forest Protection	Zimbabwe		VCS-CCBS	\$14.00
Agriculture, Forestry and Other Land Use	Peru Tree Nut Concession - avoided deforestation	Peru	2013-2014	VCS4 - REDD	\$15.00
Agriculture, Forestry and Other Land Use	Indonesia (Borneo) Rimba Raya – avoided deforestation	Indonesia	2014	VCS4,5 – REDD	\$15.50
REDD+	Rainforest Protection – South America / Africa / Asia	Africa		REDD	\$18.50
Biodiversity + Waste Gas Recovery	EcoAustralia (Mt. Sandy + Antai Waste Gas)	Australia / China		ABU + GS VER	\$18.70
Sequestration	Yarra Yarra Biodiversity Corridor	Australia		Tonne <sup>3</sup>	\$21.00
	Developing Nations Cookstoves (Africa)	Africa		VCS & Gold Standard	\$21.90
Human Induced Regeneration	Jandra / Nulty Regeneration Project	Australia		ACCU	\$34.50
Sequestration	Australian Native Reforestation	Australia	2021	Gold Standard <sup>1</sup> / PER <sup>2</sup>	\$35.00
LGCs (Electricity only)	LGCs (Scope 2 - electricity only)	Australia			\$48.00
Greenpower (Electricity only)	Greenpower (Scope 2 - electricity only)	Australia			\$51.00

## Abbreviations

- REDD+ - Reduce emissions from deforestation and forest degradation in developing countries
- CDM – Clean Development Mechanism
- ACCU - Australia Carbon Credit Unit
- PER - Planned Emissions Reduction Credits
- CER - Certified Emissions Reductions
- VCS – Verified Carbon Standard
- VCU - Verified Carbon Units
- VER - Verified Emissions Reductions

## Offsets Eligible under the Climate Active Carbon Neutral Standard

- ACCUs
- CERs (except long-term (ICERs) and temporary (tCERs); and CERs from nuclear
- RMUs
- VERs
- VCUs

## WHERE TO START ?

- Start measuring your Scope 1, 2 & 3 emissions data sources (e.g. gas, electricity, refrigerants & waste).
- Setting targets is critical to spurring action.
- Recommended to consider implementation of additional activities and targets around:
  - Greenstar Performance.
  - Sustainable Procurement.
  - NABERS Targets (Energy, Water, Indoor Environment, Waste).
- Recommend to develop detailed Net-Zero strategy around sustainability for your building, portfolio or organisation.
- Engage a specialist consultant such as HFM for ongoing support.

# WHERE TO START ?

- Develop a Net-Zero Strategy !!

		Reducing the company's GHG emissions		Reducing other emissions		Developing carbon sinks	
		induced emissions	solution/target	avoided emissions	solution/target	negative emissions	solution/target
Inside operational control		Company vehicles	Company policy – Evs only from 2020				
		Own offices – energy consumption	Increasing efficiency, lowering demands and renewable energy procurement				
Downstream leased buildings		Energy procurement for shared services in building portfolio	Framework contract for 100 % renewable energy procurement	Refurbishing & reusing existing buildings	> 60 % of embedded emissions can be saved by reusing main building parts like foundations, slabs, columns and facades (this equals to operative emissions of 25-50 years).	Carbonization of concrete	25-50 % of the carbon that was emitted during the production of concrete is absorbed during the life cycle of exposed concrete parts
		Tenant energy consumption obtained by the company	Renewable energy procurement	Refurbishing buildings	> -25 % tenant energy consumption by lowering energy demands, increasing efficiency and electrifying buildings		
		Pilot projects	Low carbon heating systems, renewable energy generation and energy flexibility of owned buildings	Tenant and employee energy procurement	Affordable 100 % renewable energy procurement (Mieterstromportal), incentivising renewable energy		
				Green Dividend	Energy/GHG-efficient refurbishment of existing buildings without economic profit	Green Dividend	Contributing to R&D and pilot projects to develop CCS or carbon sinks in owned buildings
Outside operational control		Business travel and Employee commuting	Offering best video conference equipment to minimize travel and encouraging the use of trains instead of flying; Incentivising public transport and bicycles for commuting	Coworking business – beehive.work	Helps start-ups and small tenants to avoid emissions by energy-efficient office space close to public transport	Joshua Tree Project	R&D and pilot projects on conversion of farmland to forests; later harvesting wood for construction materials
		Buying low-performing and non refurbished assets	Buying non energy-efficient assets for refurbishment	Buying assets with good access to public transport	Reducing GHG from tenant transportation (business travel and employee commuting)	GHG capture projects	Contribution to projects to develop CCS or other carbon sinks via other products
Outside value chain				Selling refurbished assets	Selling well performing & energy efficient buildings to others to operate		
				GHG reduction projects	Contributing to compensation & offsetting projects (i.e. climate neutral natural gas procurement)		
				Pilot projects	Contributions to decarbonize energy grids		

Source: CCREM 2020

## REFERENCES

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- Climate Active Public Disclosure Statement - ISPT , 2020.
- Annual ESG Report, Dexus, 2020.
- Offset Prices – Various Sources.



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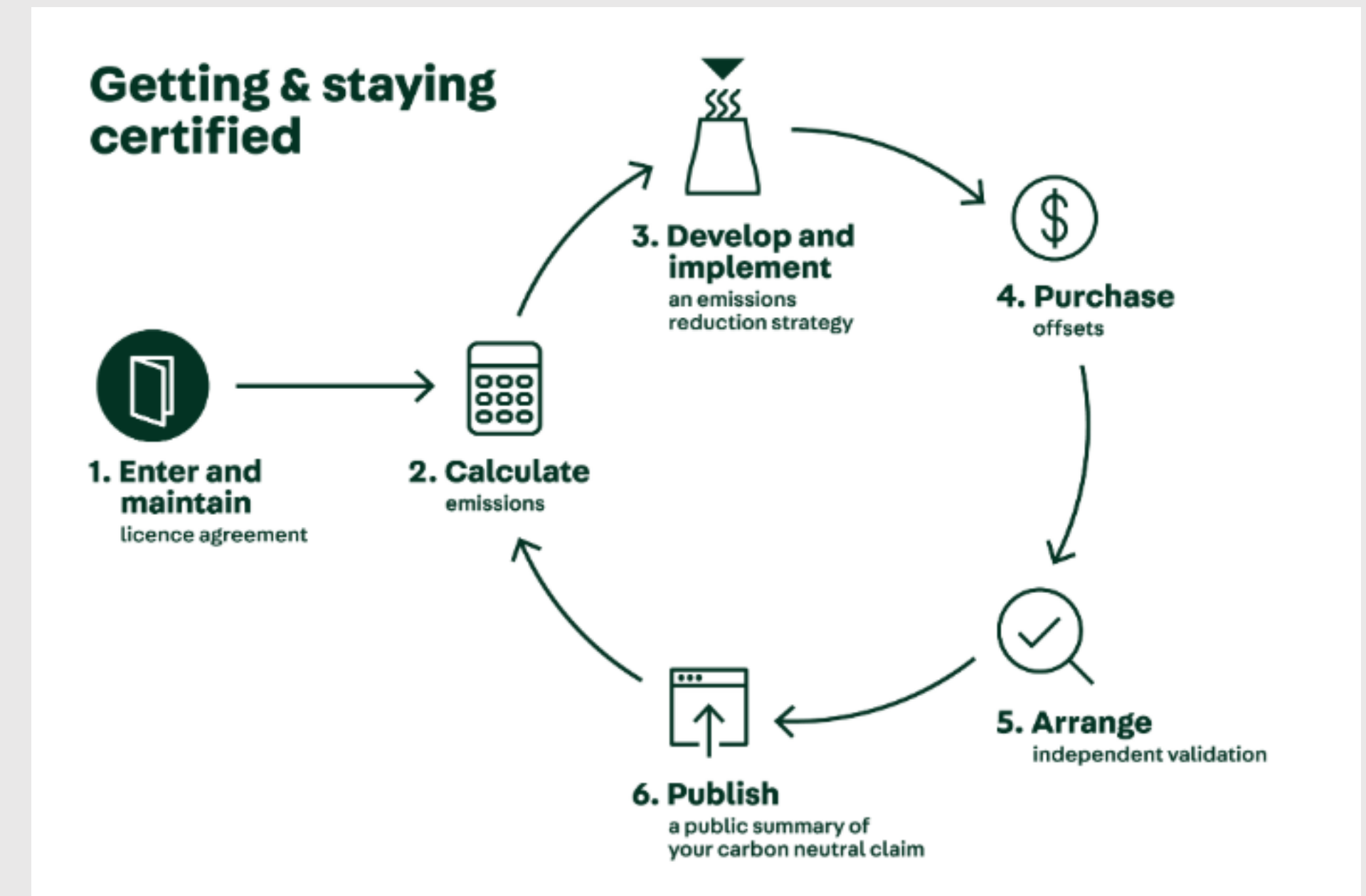
A BGIS Company

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# CLIMATE ACTIVE CERTIFICATION



- Provides independent certification that your buildings, portfolio or organisation is Carbon Neutral in its operations
- This means that the activities associated with running a building or a business have no net negative impact on the climate.
- Administered by the Australian Federal Government
- Climate active is available for buildings through either the NABERS or Greenstar Performance programs
- Includes Scope 1, Scope 2 and some Scope 3 emissions
- Climate active allows purchase of offsets



# SCIENCE BASED TARGETS INITIATIVE (SBTi)

- Ensures companies emission reduction strategies align with current climate science set under Paris agreement limit global temperature rise to 1.5°C above pre-industrial levels and reach net-zero CO2 emissions by 2050
- Factors in your emissions trajectory for your sector, organisation, and market penetration over the next few decades
- Includes short term and longer term targets
- Offsets cannot be used to achieve the targets
- Requires inclusion of scope 3 emissions if they make up more than 40% of total emissions

Figure 2 Key elements of the Net-Zero Standard

