



**Scottish**  
Engineering



**Route map to net zero by 2045**

Securing a Green Recovery  
on a Path to Net Zero – Feedback series

# House keeping



- > Please place your microphone on mute and camera off
- > Session will be recorded
- > Recording and slides will be made available on the Scottish Engineering Net Zero micro-site: <https://www.scottishengineering.org.uk/net-zero-skills/>

# Agenda

## Feedback series – Offsetting, not Greenwashing



- > Texo – learnings and findings
  - Our why and the beginning of our journey
  - Collating our emissions to date
  - Setting our road map and objectives
  - Innovation within Texo to help us achieve our objectives easier
  - Setting up a renewables sector at Texo
- > Q & A
- > Scottish Engineering – offsetting, not greenwashing
  - Context (SEng)
  - Offsetting
  - Markets
  - Standards
  - Pricing
  - Options and Recommendations (for SEng)

# Vision

## Offsetting

## Analysis

## Reducing

## Collaboration

## Innovation

## Imagination

## People

1

"Our Why"

2

Calculating our emissions

3

Consultation  
& engagement

4

Setting our objectives

5

Establishing a renewables  
sector

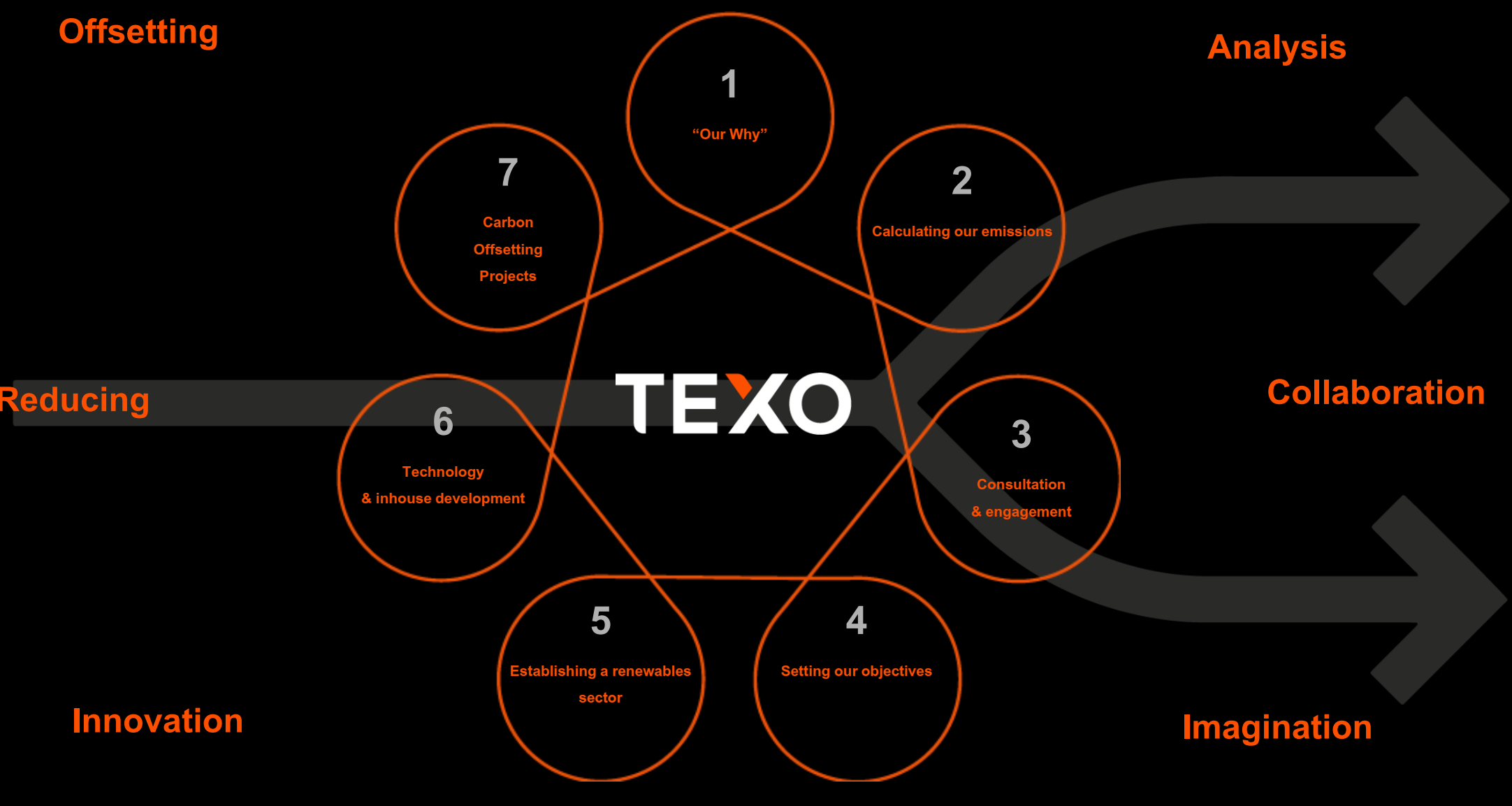
6

Technology  
& inhouse development

7

Carbon  
Offsetting  
Projects

TEXO





# Scottish Engineering



## Roadmap to net zero

Findings and learnings on our  
journey

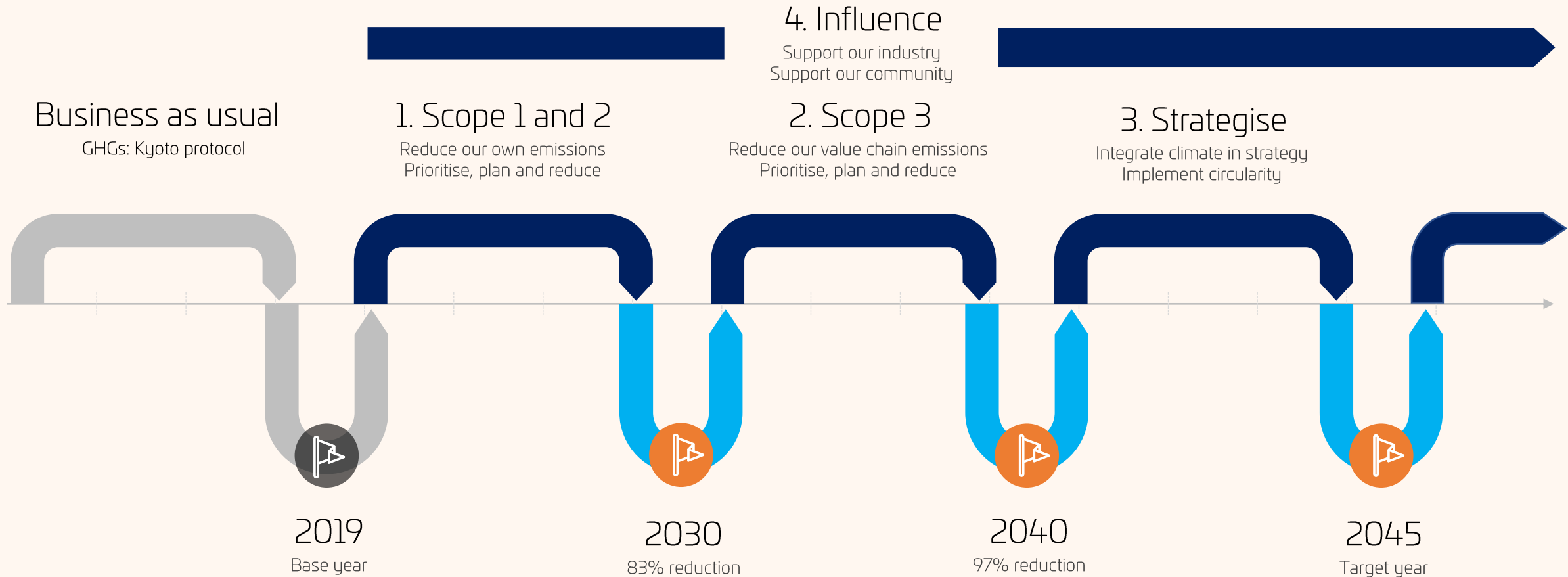
# Context



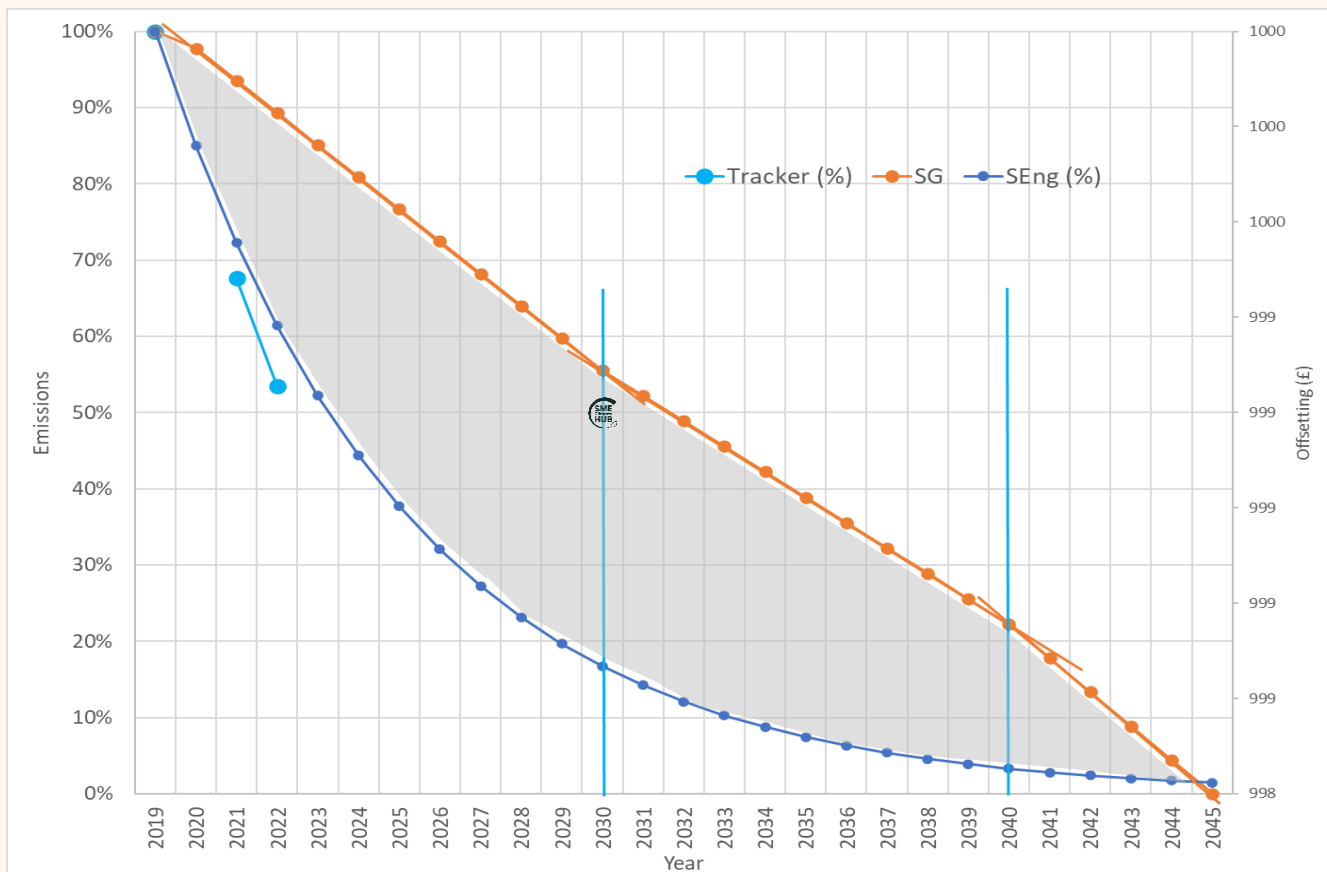
# Roadmap (webinar 10)



## Scottish Engineering - Net Zero by 2045 at the latest



# Tracker (webinar 11)



	year	SEng (%)	SEng (tCO2e)	Tracker (%)	Tracker (tCO2e)
0	2019	100%	96	100%	96
1	2020	85%	82		-
2	2021	72%	70	68%	65
3	2022	61%	59	53%	52
4	2023	52%	50		
5	2024	44%	43		
6	2025	38%	36		
7	2026	32%	31		
8	2027	27%	26		
9	2028	23%	22		
10	2029	20%	19		
11	2030	17%	16		
12	2031	14%	14		
13	2032	12%	12		
14	2033	10%	10		
15	2034	9%	8		
16	2035	7%	7		
17	2036	6%	6		
18	2037	5%	5		
19	2038	5%	4		
20	2039	4%	4		
21	2040	3%	3		
22	2041	3%	3		
23	2042	2%	2		
24	2043	2%	2		
25	2044	2%	2		
26	2045	1%	1		





# Offsetting...



# ...not Greenwashing

# Offsetting

## What?



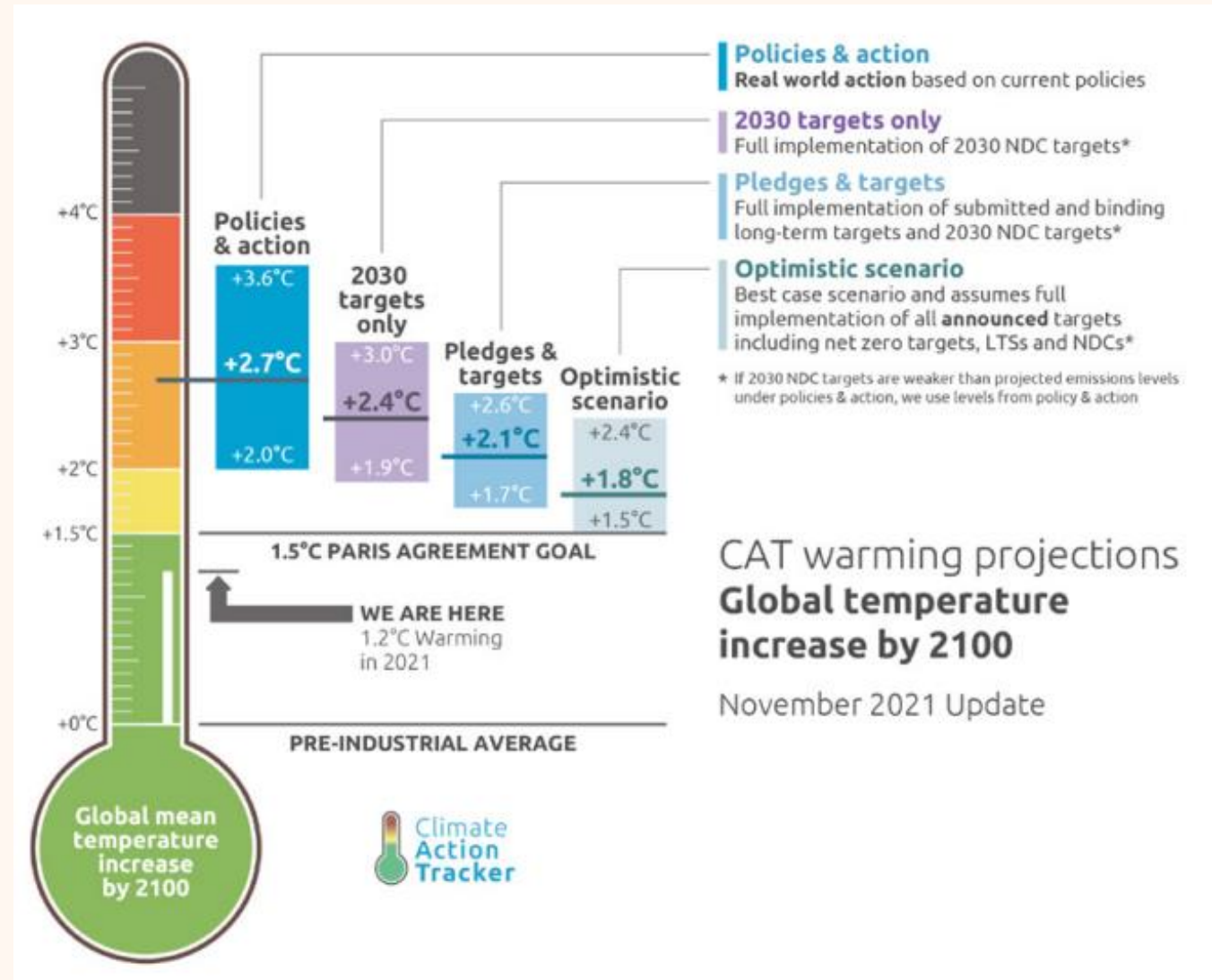
- Robust carbon offsetting strategies acknowledge that offsetting is **no replacement for emissions reductions**.
- Offsetting is a mechanism used to **finance greenhouse gas (GHG) emission reductions** or sequestration often equivalent to the residual emissions of an organisation, business or territory.
- Carbon offsetting is based on the principle of **geographical neutrality**: avoiding the emission of one tonne of CO<sub>2</sub>e, regardless of the geographical location or method, brings the same climate benefit.

# Offsetting

## Why? When? Who?

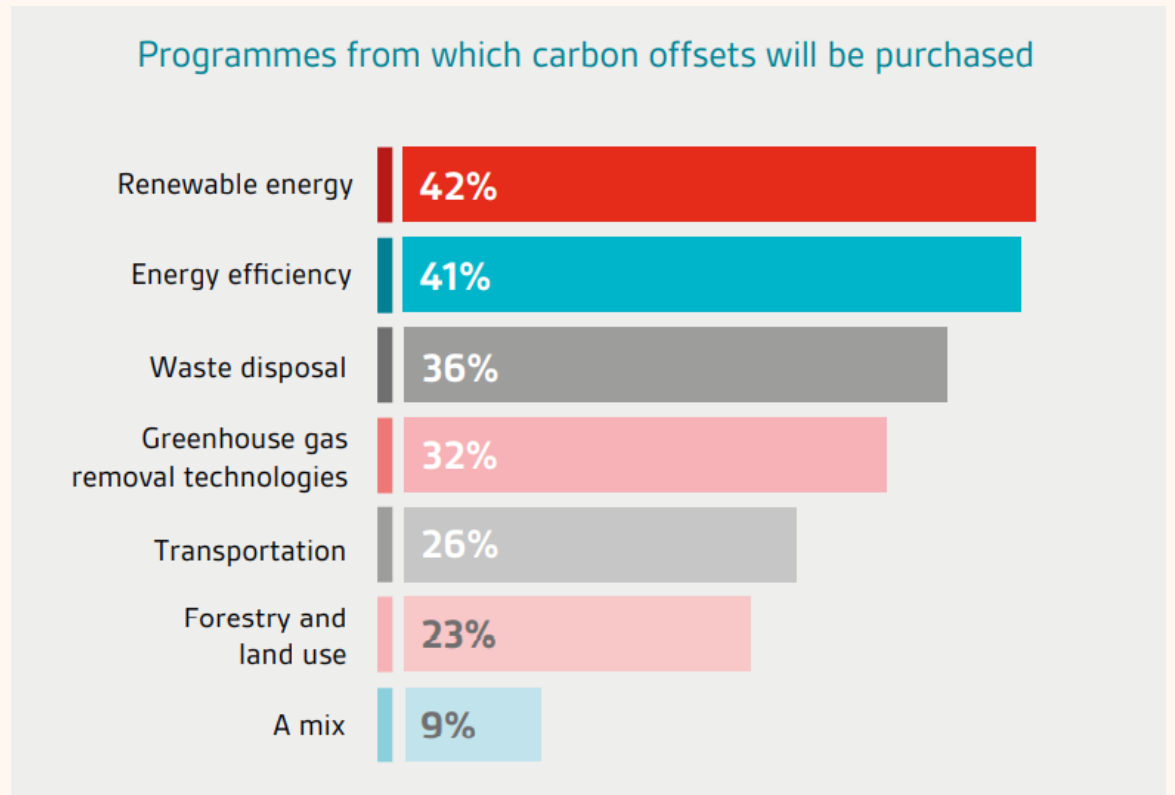
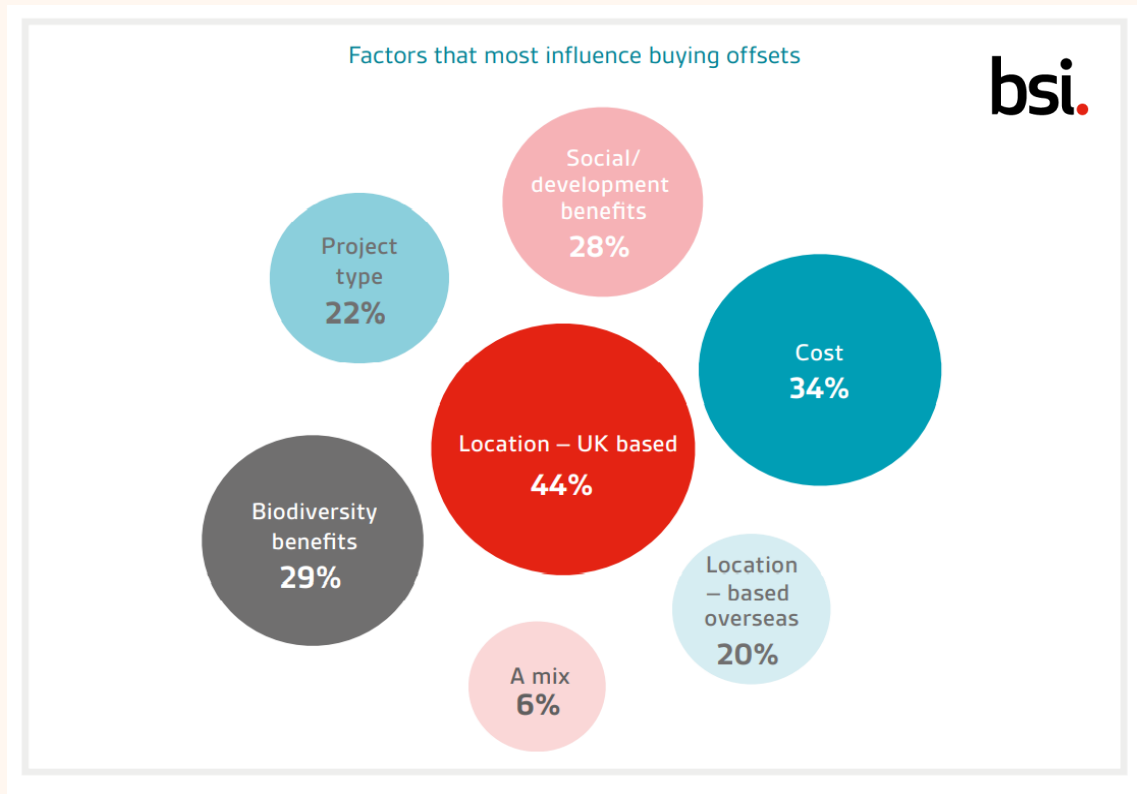


- **Ambition gap (why):** all the global policies and actions in existence will still lead to approx. 2.7°C of warming by 2100.
- **Timing gap (when):** planned action from governments will lead to overshooting required timelines advised by the IPCC and climate science.
- **Finance gap (who):** Governmental funding of low carbon pathways are not enough on their own. The private sector is therefore a critical tool in mobilising capital.



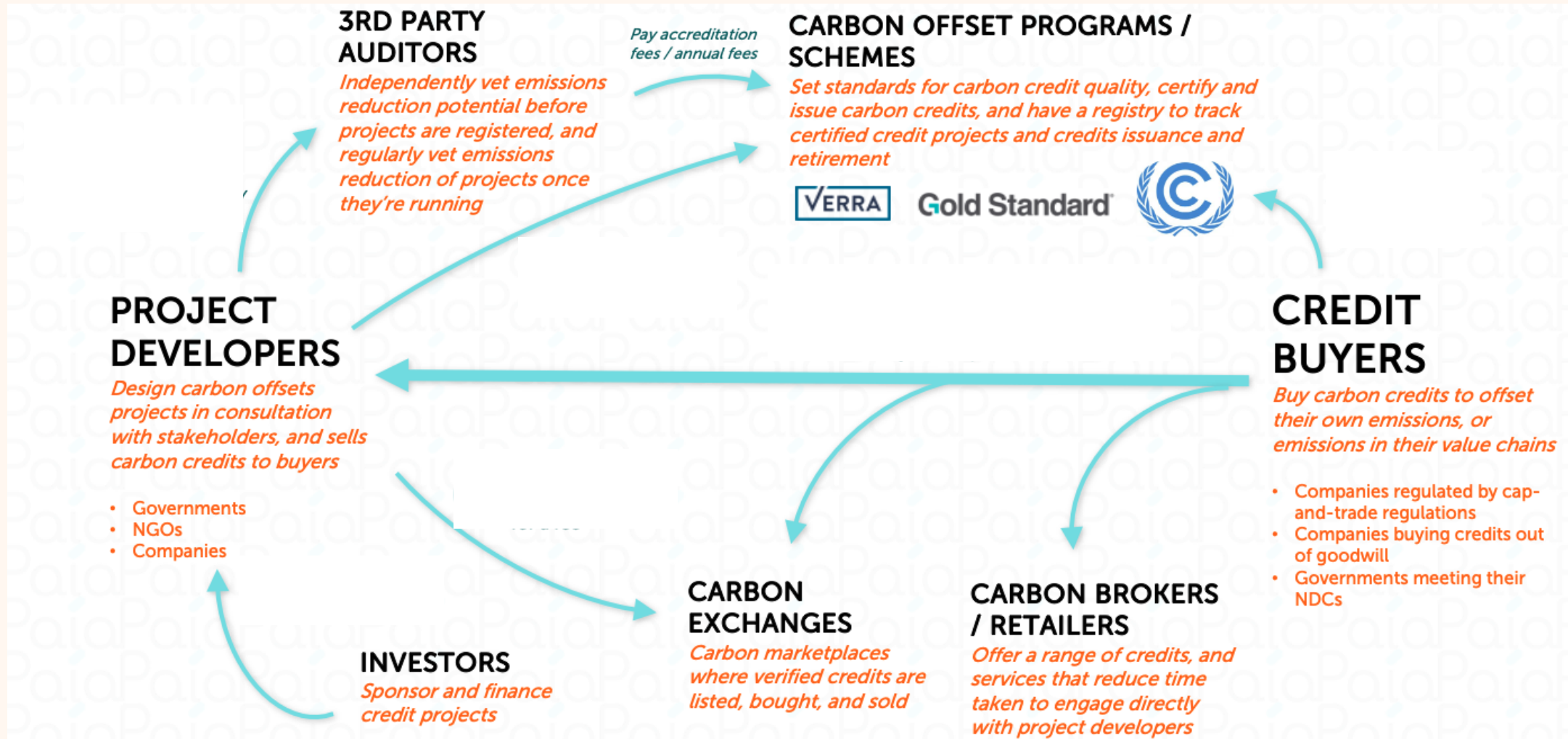
# Offsetting

## Where?



# Offsetting

## How? How much?



# Offsetting

## Criticisms - it is wise to approach the carbon offset market with healthy skepticism



- How much of the money spent on a carbon credit actually goes towards the **offsetting** solution compared to how much is spent on the organisation and management of the schemes.
- They can act as a 'get out of jail free' card, giving businesses licence to act however they want as long as they offset it., whereby the guilty pay for their absolution rather than changing their behaviour = **greenwashing**

# Offsetting

## Quality principles



- **Must be:**

1. **Additional:** would not have happened in the absence of the payments derived from the sale of carbon credits.
2. **Permanent:** represents a long-term mitigation benefit. Measures to limit the risk of reversal of CO2 emission reductions.
3. **Measurable:** quantifiable using recognised conservative methods against a credible baseline.
4. **Independently audited:** mitigation activities are validated and verified by independent third-party auditing bodies.

- **Must not have:**

5. **Leakage:** the mitigation activity does not lead to the increase of emissions outside the boundaries of the activity.
6. **Negative impact on local populations:** do not lead to negative impact or harm to local communities.
7. **Double counting:** cannot be claimed or accounted more than once.



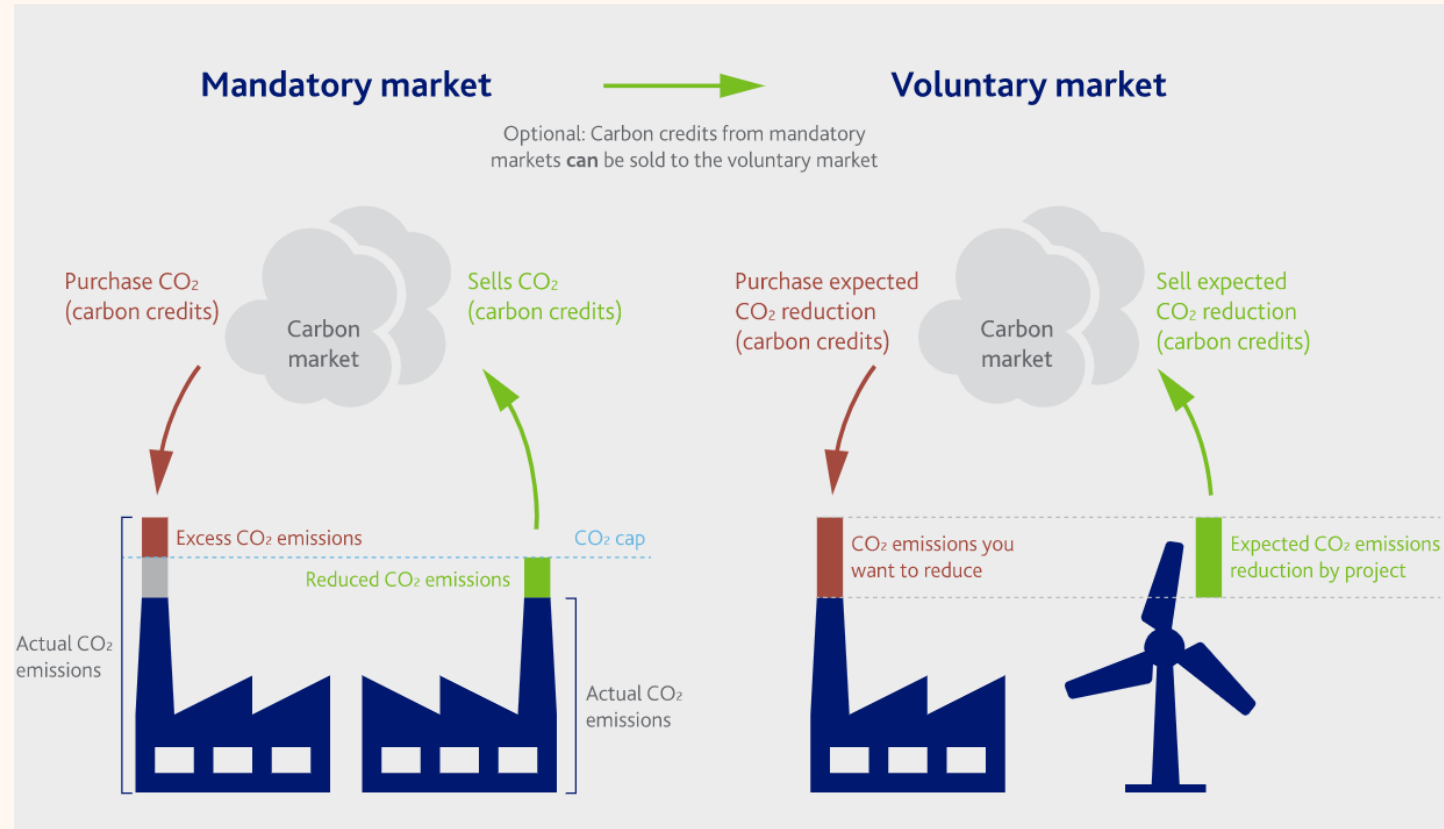
# Markets



# Markets

## Which one?

- **Mandatory market** - carbon credit: a generic term for any tradable certificate or permit representing the right to emit a set amount of carbon dioxide.
- **Voluntary market** - carbon offset: reduction or removal of carbon dioxide to compensate for emissions made elsewhere.



# Voluntary carbon market

## Sequestration | Removal



- **Nature based sequestration:** sequester more carbon in the biosphere: woodland, peatland, seagrass, mangroves,...
- **Technology-based removal:** removes carbon from the atmosphere with the help of technology and store it

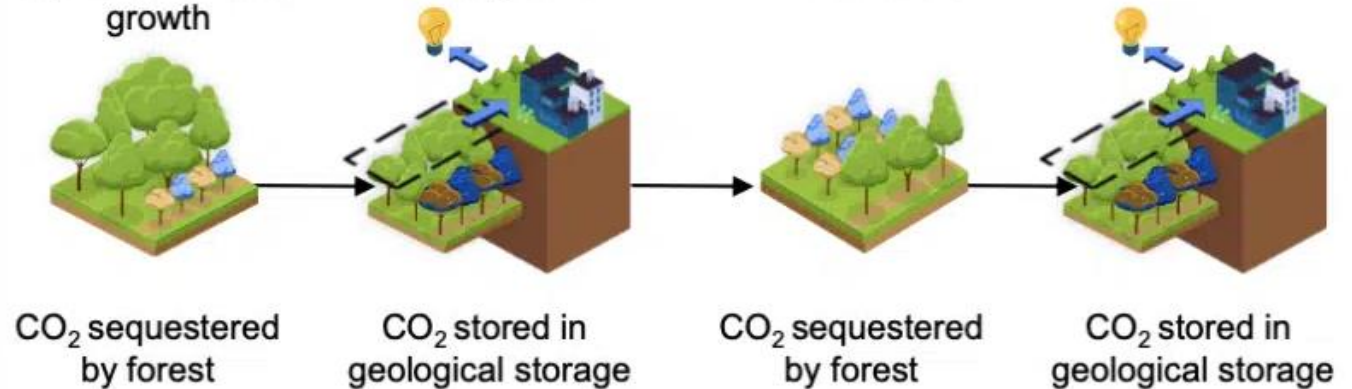
### **Example for technology-based removal: bio-energy with carbon capture and storage (BECCS)**

Old trees are harvested from a forest at a rate equivalent to new growth

Trees are burnt to generate electricity, and CO<sub>2</sub> is stored underground

Forest keeps absorbing CO<sub>2</sub> through new growth, other trees become old

... and the process repeats



# Voluntary carbon market

## Avoidance | Reduction



- **Avoided nature loss:** limit the loss of woodland/peatland which currently sequester carbon
- **Additional reduction:** reduces emissions from sources which do not have financial incentive or regulatory requirement to do so

### *Example for avoided nature loss: avoided deforestation*

**Avoiding deforestation means protecting large areas of land** from logging/other destructive activities. CO<sub>2</sub> that has been stored and sequestered by biomass on this land is therefore not released to the atmosphere.


























# Standards



# Offset Organisations

## Which one?



 <b>allcot</b>	 <b>ACT</b>	 <b>ecosphere+</b>	 <b>co2balance.com</b>	 <b>ecoact</b> <small>an veda company</small>	 <b>element</b> <b>MARKETS</b>	 <b>TotalEnergies</b>	 <b>TOITŪ</b> <small>ENVIRO CARE</small>	 <b>VERTIS</b>
<b>Allcot</b> Last Audit Completion: 27 July 2022	<b>ACT</b> Last Audit Completion: 26 May 2022	<b>Ecosphere +</b> Last Audit Completion: 20 June 2022	<b>Co2 Balance</b> Last Audit Completion: 20 June 2022	<b>EcoAct</b> Last Audit Completion: 06 July 2022	<b>Element Markets (Anew)</b> Last Audit Completion: 17 June 2022	<b>TotalEnergies Carbon Solutions</b> Last Audit Completion: 31 May 2022	<b>TOITU</b> Last Audit Completion: 05 May 2022	<b>VERTIS</b> Last Audit Completion: 26 May 2022
 <b>Arbor Day Foundation</b>	 <b>bp target neutral</b>	 <b>carbonsink</b> <small>the sustainable change</small>	 <b>3Degrees.</b>	 <b>First Climate</b>	 <b>FORLIANCE</b> <small>IMPROVING CLIMATE ACTION</small>	 <b>VNV ADVISORY</b>	 <b>WILDLIFE WORKS</b>	
<b>Arbor Day Foundation</b> Last Audit Completion: 5 May 2022	<b>BP Target Neutral</b> Last Audit Completion: 17 June 2022	<b>Carbonsink</b> Last Audit Completion: 26 May 2022	<b>3Degrees</b> Last Audit Completion: 06 June 2022	<b>First Climate</b> Last Audit Completion: 16 May 2022	<b>Forliance</b> Last Audit Completion: 8 June 2022	<b>VNV Advisory</b> Last Audit Completion: 05 May 2022	<b>Wildlife Works</b> Last Audit Completion: 9 May 2022	
 <b>climatecare</b>	 <b>Climate Neutral Group</b>	 <b>ClimatePartner</b>	 <b>NATURAL CAPITAL PARTNERS</b>	 <b>Respira</b>	 <b>south pole</b>			
<b>ClimateCare</b> Last Audit Completion: 17 June 2022	<b>Climate Neutral Group</b> Last Audit Completion: 25 July 2022	<b>ClimatePartner</b> Last Audit Completion: 20 June 2022	<b>Natural Capital Partners</b> Last Audit Completion: 22 June 2022	<b>Respira International</b> Last Audit Completion: 06 June 2022	<b>South Pole</b> Last Audit Completion: 28 July 2022			

# Offset Standards

Which one?



## Independent standards

**Gold Standard**  
*Climate Security & Sustainable Development*

**Verified Carbon Standard**

**ART**  
Architecture for REDD+ Transactions

**CLIMATE ACTION RESERVE**



**CCBA**  
The Climate, Community & Biodiversity Alliance

**American Carbon Registry**

**ecoact**  
an atos company

## Government standards



**Woodland Carbon CO<sub>2</sub>e**



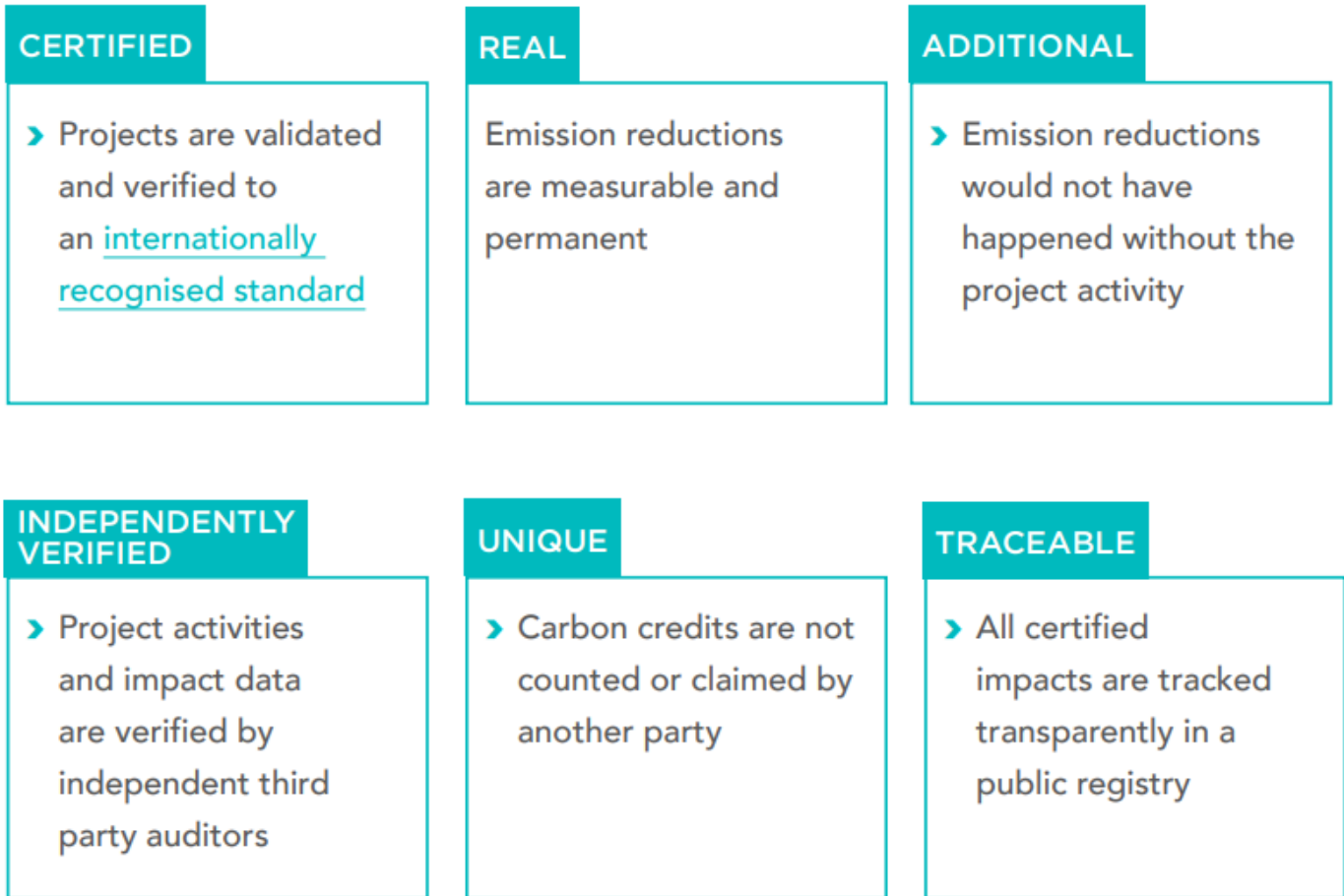
**Australian Government**  
Department of the Environment and Energy

# Gold Standard

## Attributes



1. Additionality – [Additional]
2. Permanence – [Real]
3. Measurability – [Real]
4. Independent auditing – [Verified]
5. No leakage – [Certified (GHG Protocol)]
6. No negative impact on local populations – [certified (UNSDG)]
7. No double counting – [Unique]



- Traceable



# Verra

## Verified Carbon Standard



1. Additionality – methodology
2. Permanence – methodology
3. Measurability – methodology (ISO 14064-2:2006, clause 3)
4. Independent auditing – auditing
5. No leakage – methodology
6. No negative impact on local populations – methodology
7. No double counting – registry

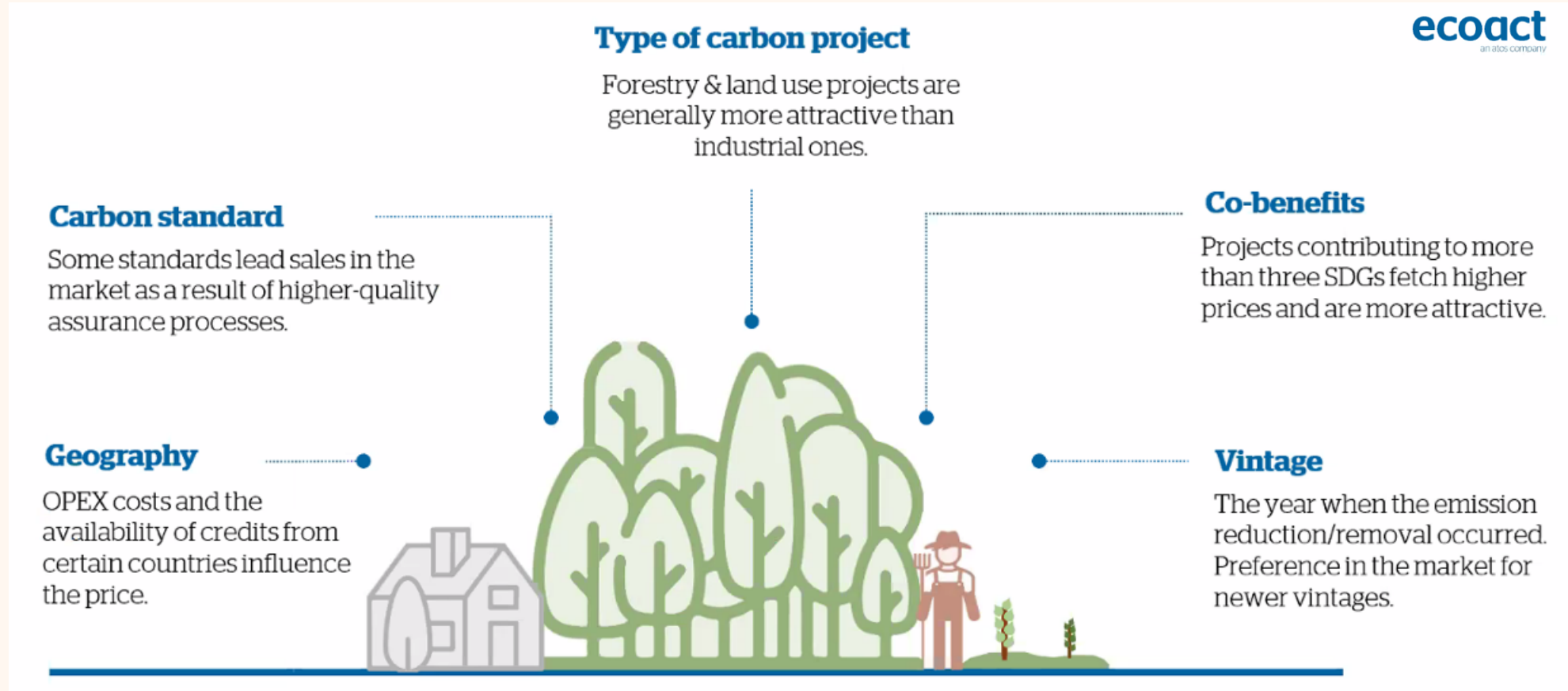


# Pricing



# Pricing

## Variability

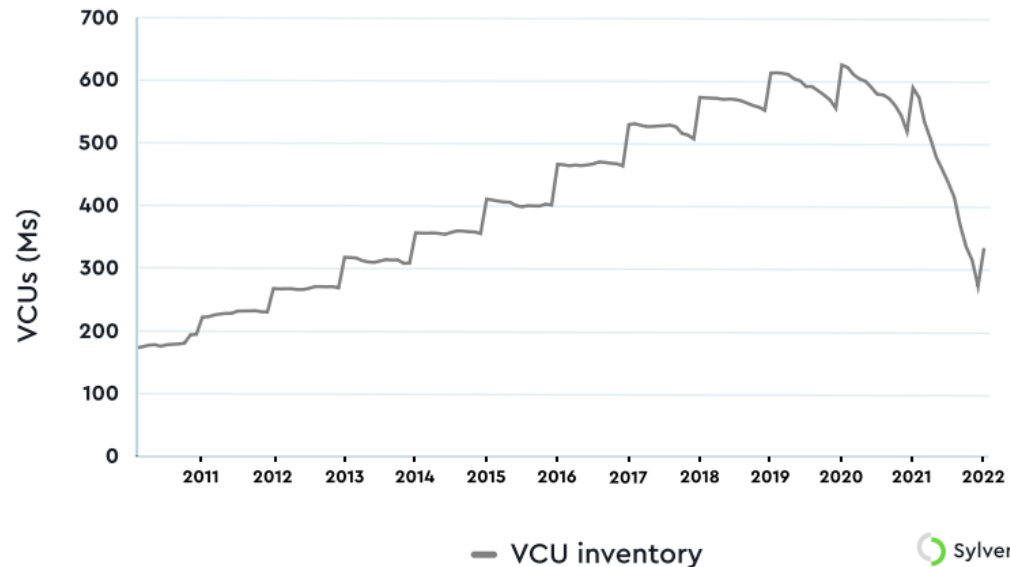


# Pricing

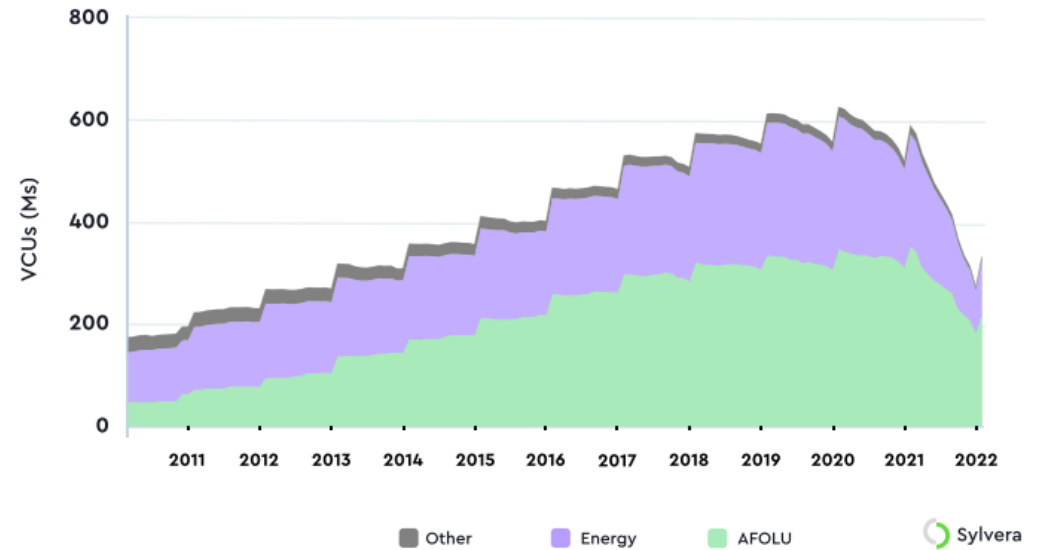
## Demand is outpacing supply (issuances)



Inventory of issuable credits more than halved in 2021



Nature-based credits will soon be the only game in town



# Gold Standard

## Pricing



- Businesses can refer to the **GHG Protocol's** Emissions Calculator to calculate their carbon footprint.
- Add the quantity of carbon credits to the cart and follow checkout instructions (**\$10 to \$47 / t CO<sub>2</sub>**).
- Carbon credits are retired in real-time in Impact **Registry** for full traceability.

INSTITUTIONAL IMPROVED  
COOKSTOVES FOR SCHOOLS AND  
INSTITUTIONS IN UGANDA

\$31.00 USD/TONNE

1 ADD TO CART

UTSIL NAJ - HEALTHY HOMES FOR  
ALL IN GUATEMALA

\$25.00 USD/TONNE

1 ADD TO CART

100.5 MW WIND POWER PROJECT IN  
MADHYA PRADESH, INDIA

\$12.00 USD/TONNE

1 ADD TO CART

CLEANER, SAFER WATER IN  
CAMBODIA

\$15.00 USD/TONNE

1 SOLD OUT

MYANMAR STOVES CAMPAIGN

\$18.00 USD/TONNE

1 SOLD OUT

TERRACLEAR - CLEAN WATER  
ACCESS FOR FAMILIES IN LAOS

\$15.00 USD/TONNE

1 ADD TO CART

20 MW BIOMASS POWER PROJECT IN  
CHHATTISGARH, INDIA

\$11.00 USD/TONNE

1 ADD TO CART

400 MW SOLAR POWER PROJECT AT  
BHADLA, RAJASTHAN, INDIA

\$12.00 USD/TONNE

1 ADD TO CART

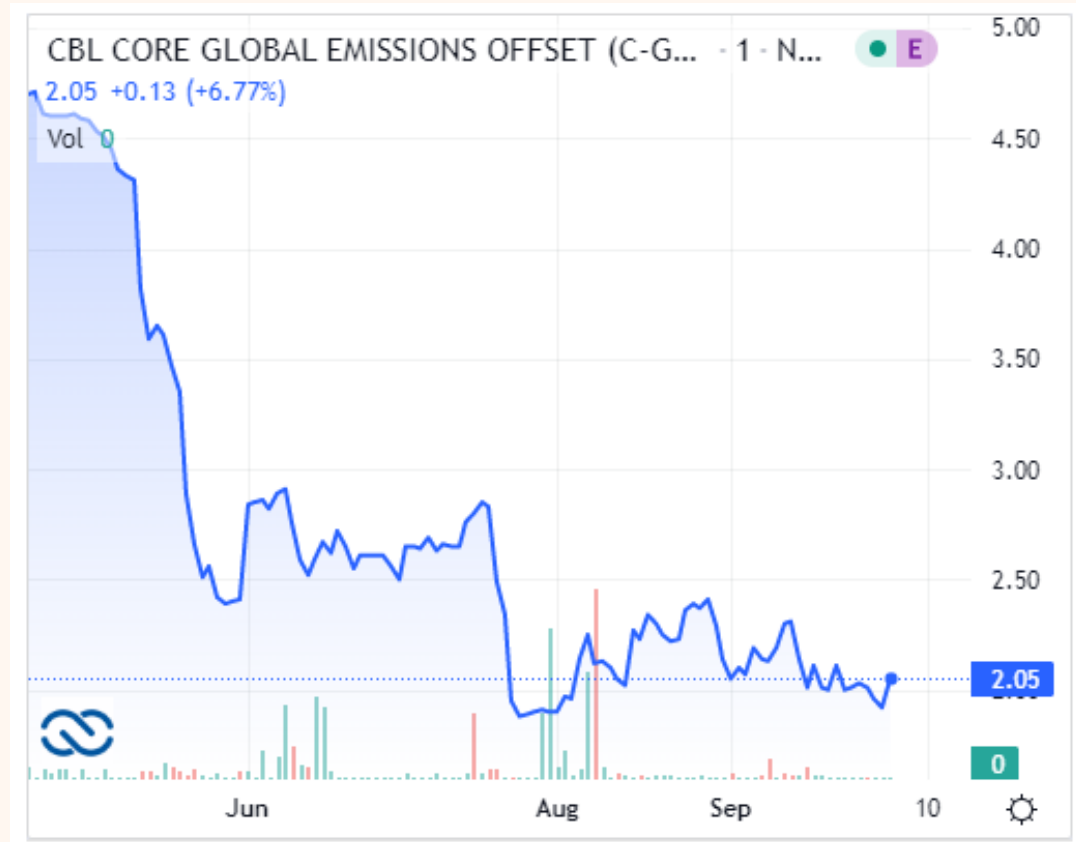
EMISSIONS REDUCTIONS FROM PET  
RECYCLING, ROMANIA

\$47.00 USD/TONNE

1 SOLD OUT

# Verified Carbon Standard

## Pricing (based on registry)



# Carbon Neutral Britain


## Pricing





- All the carbon offsetting projects are certified through the Gold Standard Voluntary Emission Reductions (**VER**) and the United Nations Certified Emission Reductions (**CER**) programmes.
- Calculate Carbon Footprint Emissions following the **ISO 14064** and the **GHG Protocol** Standards.

£10.99 / month

## Become Carbon Neutral **Plus**

 30 Trees Planted each Month  
+ 120 Extra Trees per year

 20 Tonnes of CO<sub>2</sub> Removed each Year (133% Annual Footprint)  
+ 5 Extra Tonnes CO<sub>2</sub> per year



✓ Carbon Offset Verified  
by Carbon Neutral Britain™

The graphic features a background of penguins on an ice floe. It includes icons for trees, a CO2 cloud, and the Union Jack flag.

# Takeaway





# Offsetting...not greenwashing

## Offsetting as part of the strategy, but not the strategy



- Offsetting must be concurrent to a carbon reduction plan or a net zero roadmap – it cannot be a license to pollute.
- Quality offsetting abides by 7 principles, included in standards (e.g. Gold Standard) and covered by accreditation (e.g. ICROA), that must be considered
- A wide range of projects qualifies as offsetting, but demand which is exceeding supply will impact pricing and therefore cost, which is perceived as being too low currently.

# Scottish Engineering

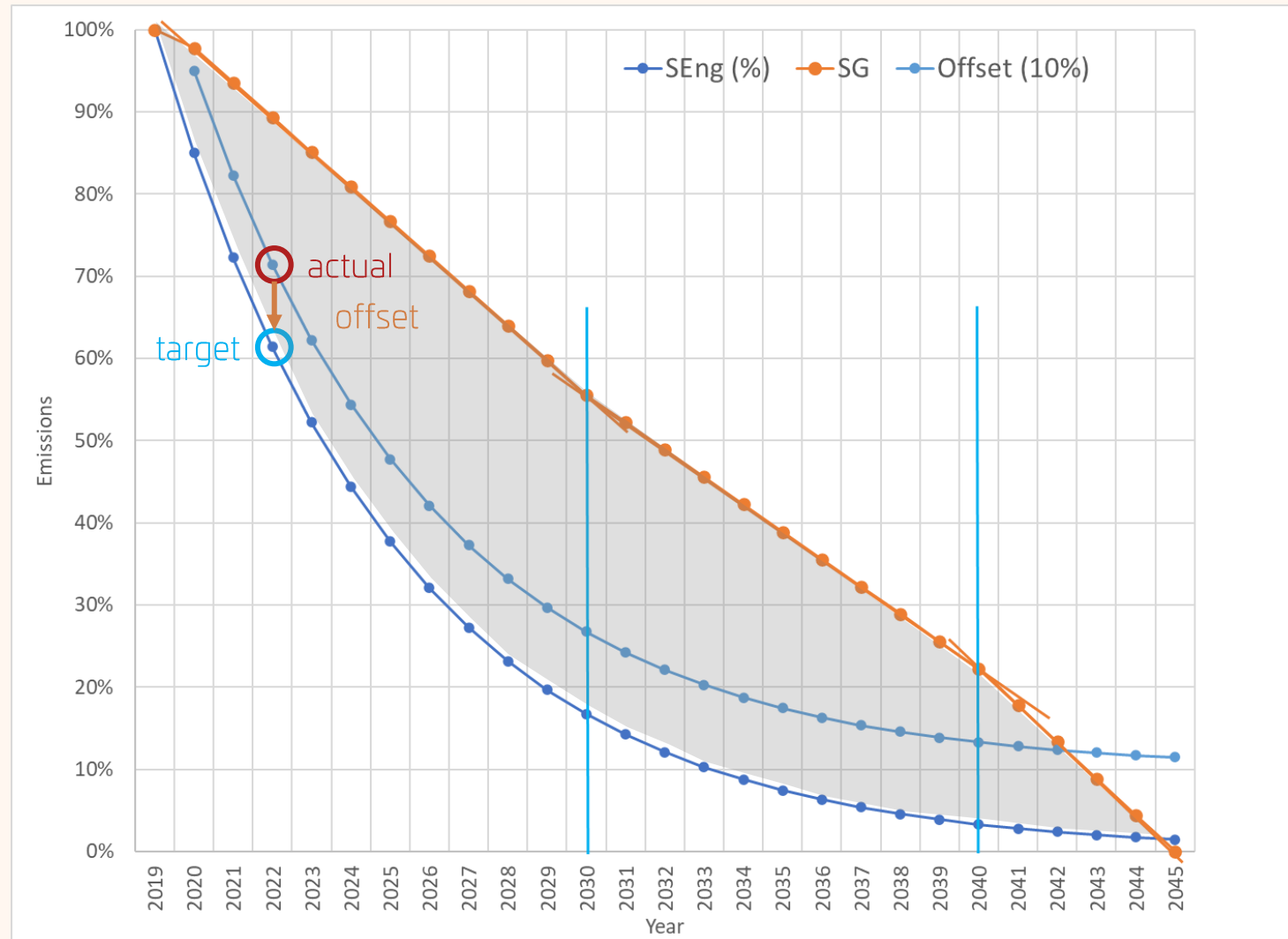


# Offsetting

## 10% of base year (SBTi)



- **Residual emissions** are emissions sources that remain unabated by the time net-zero is reached at the global or sector level in 1.5°C mitigation pathways with low or no overshoot.
- For most companies this requires emission reductions of at least 90%, which implies neutralisation of no more than **10% of base year emissions** when reaching net-zero.

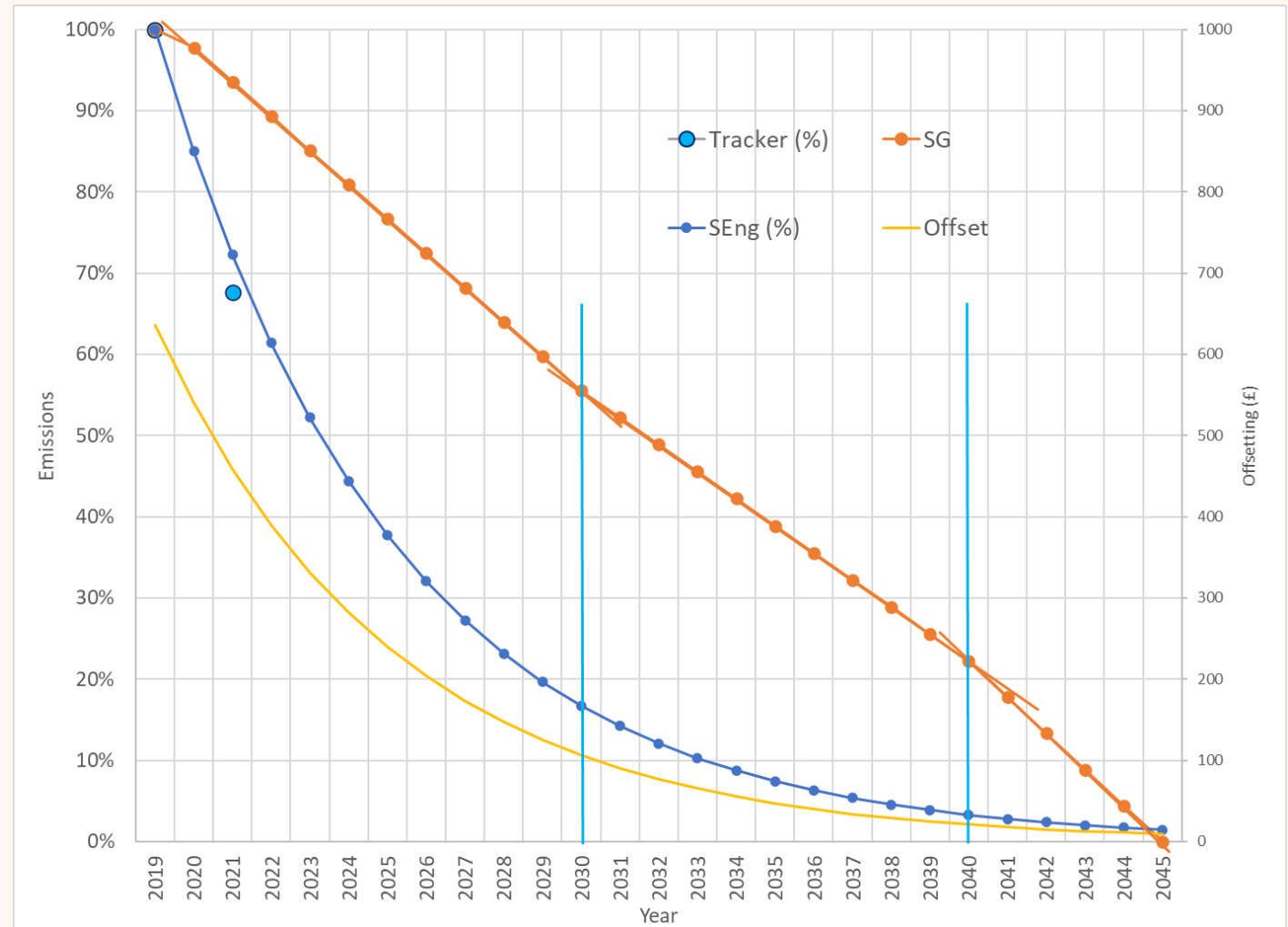


# Offsetting

100% of unabated



- Residual emissions are emissions sources that remain unabated during the **implementation of the carbon reduction plan.**
- Offsetting amount and cost **decrease** as the carbon reduction plan is implemented



# Offsetting

## Options



### Malawi Biomass Conservation - Efficient Stoves

- Type: Efficient Cookstove
- Location: Malawi, Africa
- Standard: Gold Standard
- Reference: GS2446
- Est. Reductions: 10,000 tCO<sub>2</sub>e per year

## Global Portfolio

Personalised Downloadable Certificate Available

**£ 864.00** to offset 96 tonnes  
(£ 9.00 per tonne)



[Add To Basket](#) [Monthly Subscription](#)

Your funding supports our Global Portfolio VCS certified carbon reduction programmes across the world via a [range of projects](#) that include carbon avoidance, clean and renewable energy generation. Many are within developing countries, where they also provide additional social benefits.

## UK Tree Planting

Personalised Downloadable Certificate Available

**£ 1900.80 incl. 20% VAT** to offset 96 tonnes  
(£ 19.80 incl. 20% VAT per tonne)

Choose region:  [Add To Basket](#) [Monthly Subscription](#)

Your funding supports the planting of trees in the UK region of your choice. The project mainly plants in school locations, helping to educate children and support wildlife habitats whilst sequestering carbon emissions.

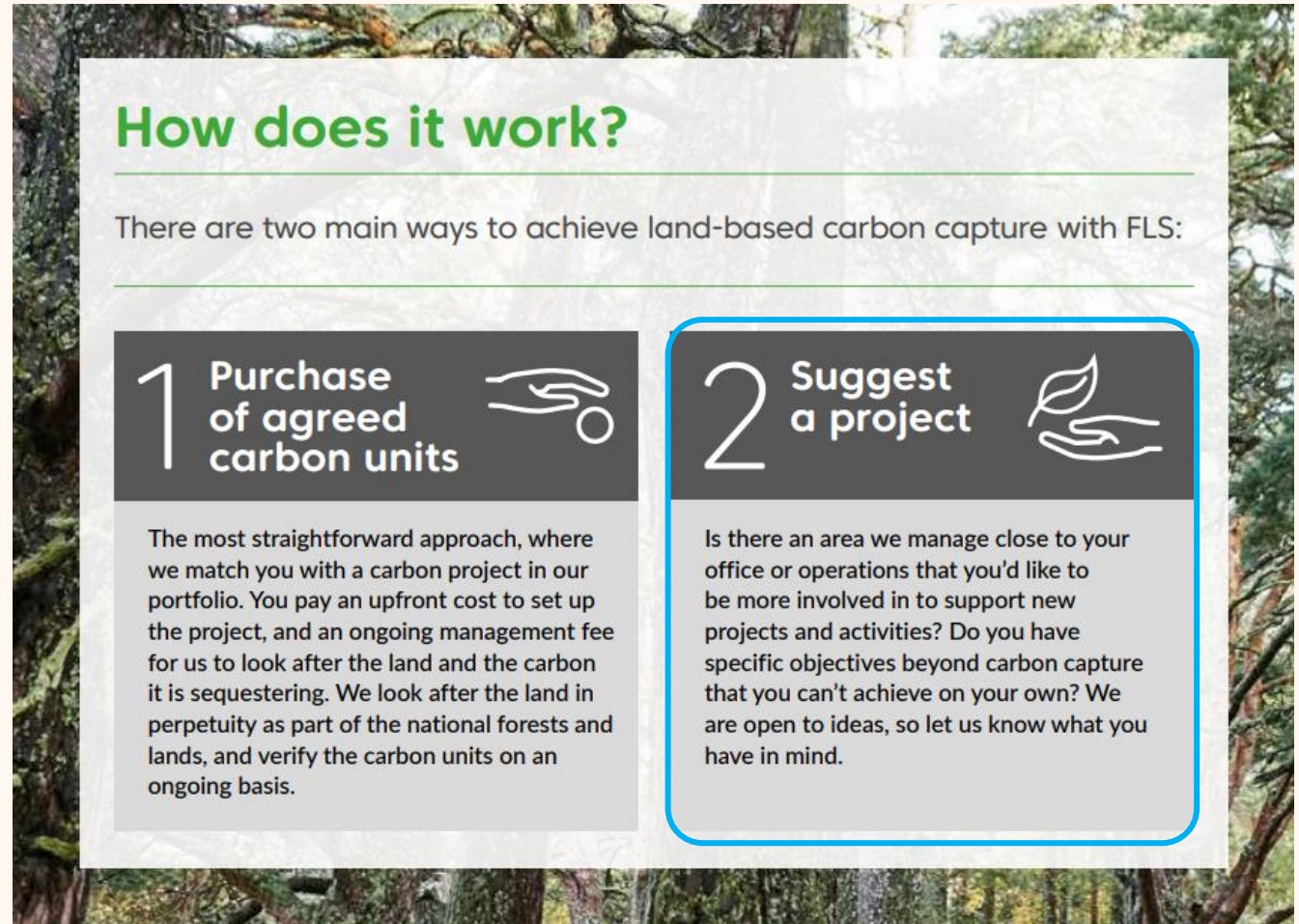
For each tCO<sub>2</sub>e offset, one tree is planted in the UK and an additional tCO<sub>2</sub>e is offset through a [VCS Tree Buddying](#) project to guarantee the emission reductions.

# Offsetting

## Locally





- All the projects are verified to the Woodland Carbon Code and Peatland Code **standards**.
- The projects also bring many **co-benefits**:
  - Restoring degraded landscapes and creating new habitats for **wildlife**
  - Creating **green spaces** for people to enjoy
  - Improving local **water** quality, flood and drought resilience
  - Providing sustainable **construction** materials



### How does it work?

There are two main ways to achieve land-based carbon capture with FLS:

- 1 Purchase of agreed carbon units** 

The most straightforward approach, where we match you with a carbon project in our portfolio. You pay an upfront cost to set up the project, and an ongoing management fee for us to look after the land and the carbon it is sequestering. We look after the land in perpetuity as part of the national forests and lands, and verify the carbon units on an ongoing basis.
- 2 Suggest a project** 

Is there an area we manage close to your office or operations that you'd like to be more involved in to support new projects and activities? Do you have specific objectives beyond carbon capture that you can't achieve on your own? We are open to ideas, so let us know what you have in mind.

# Offsetting

## Recommendations




- > Offset now, ideally 100% but at least 10% of base year, because:
  - It is the right thing to do (positive legacy)
  - It will provide valuable learnings to share
  - It is financially sustainable
- ❖ **But:**
  - **Develop, track and deliver a carbon reduction plan** to:
    - Decrease the impact and avoid greenwashing
    - Free offsetting capacity
    - Decrease the cost














# Net-Zero Support Programme



## Webinars



 <p>The feedback series: From Ambition to Solutions</p>	 <p>Progressing your Net Zero Journey</p>	 <p>Building a SMART Roadmap to Net Zero</p>
 <p>2021 Programme Recap Webinar</p>	 <p>Understanding Net Zero Standards Webinar</p>	 <p>Session 6 – Land Use, Land Use Change &amp; Forestry (LULUCF) and Agriculture</p>
 <p>Session 5 – Building, Transport and Industry</p>	 <p>Session 4 – Electricity and Negative Emission Technologies (NETs)</p>	 <p>Session 3 – Waste and the Circular Economy</p>
 <p>Session 2 – The Path to Net-Zero 2</p>	 <p>Session 1 – The Path to Net-Zero</p>	

## One-to-One

- > Please make a note of interest to:
  - > [scoteng.org.uk](https://www.scoteng.org.uk)
  - > 0141 221 3181

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- > <https://www.scottishengineering.org.uk/net-zero-skills/path-to-net-zero-webinars/>





# Thank you



[scoteng.org.uk](http://scoteng.org.uk) | 0141 221 3181

