

University Position on Carbon Sequestration and Carbon Offsets

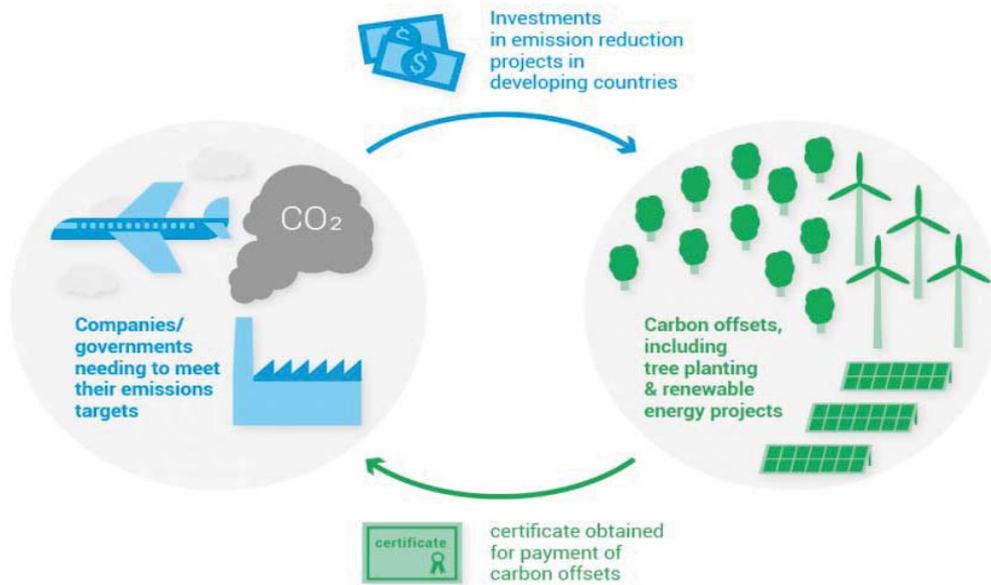
1. Introduction

- 1.1. The greater awareness of climate change and the urgent need to respond to the climate emergency has generated much debate and proposals for action, including proposals for 'net zero' approaches that include various forms of carbon sequestration and offsetting.
- 1.2. The University requires a clear and defensible position on these matters to guide and clarify our decisions and approach, and to assist when responding to both scrutiny and inevitable requests to engage with various schemes.

2. *What Is Carbon Sequestration and Carbon Offsetting?*

- 2.1. **Carbon sequestration** is the process of capturing and storing atmospheric carbon dioxide. It can take place via natural processes such as tree growth, via the application of technologies (e.g. direct air capture and storage (DACs)), or a combination of natural and technological processes (e.g. bioenergy with carbon capture and storage (BECCS)). Activities that increase the amount of carbon sequestration are also referred to as 'removal enhancements'.
- 2.2. **Carbon offsetting** generally refers to the practice of purchasing emission reductions or removal enhancements that occurs outside the greenhouse gas (GHG) inventory boundary of an entity in order to compensate for emissions occurring within the entity's GHG inventory boundary. Figure 1 illustrates the way in which emission reductions and removal enhancements associated with offsets occur outside the GHG inventory boundary of the entity that purchases the offset.
- 2.3. Carbon sequestration can be undertaken within an entity's GHG inventory boundary in order to achieve a net zero inventory (i.e. the amount of sequestration equals the amount of emissions), or it can constitute an offset, if the removal enhancement occurs outside the GHG inventory boundary of the reporting entity. Direct carbon sequestration is removal that takes place within an organisational inventory boundary

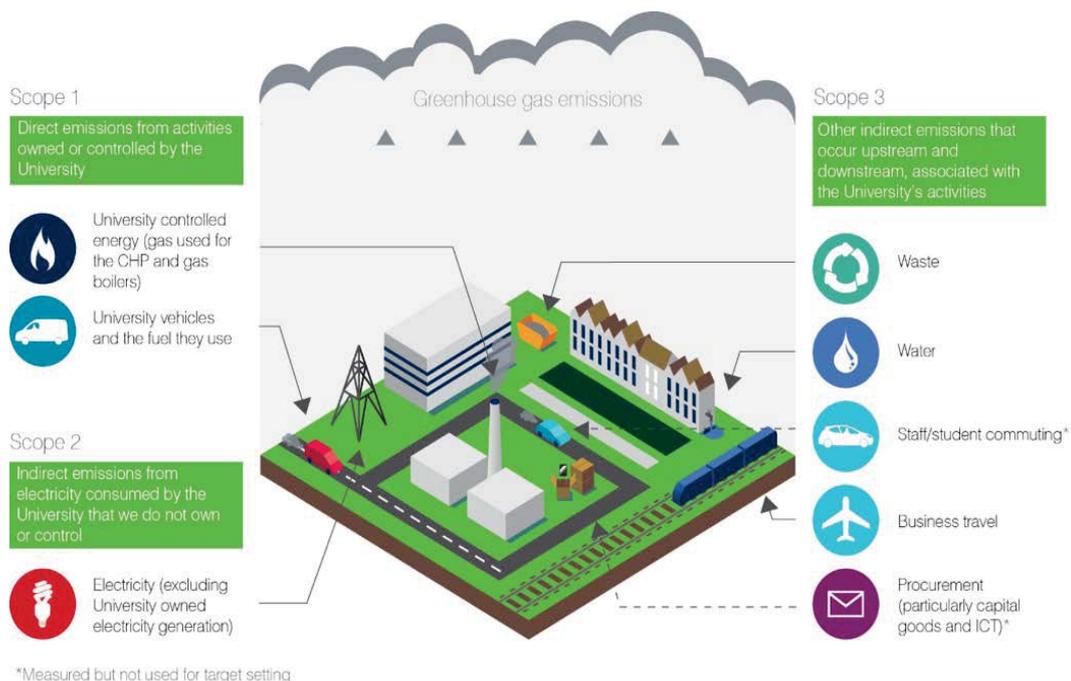
Figure 1. Carbon offsetting example



3. What Is Our Position?

3.1. The University is committed to being a net zero University by 2040, including a wide scope of emissions. We plan to reduce demand for energy and resources and flights where we can, and then consider carbon sequestration for our remaining emissions. Our chosen emissions scope reflects our view that credible action on climate requires action across all of our major impacts—energy use, business travel including flights, staff and student commuting, and (potentially) student travel by plane outwith term time (see Figure 2). We do not consider procurement in scope but take action to reduce carbon in our purchases.

Figure 2. GHG Protocol emissions scopes



- 3.2. In accounting for our carbon emissions, we will follow best practice by generating a 'gross carbon' number for our in-scope emissions, and then a 'net carbon' number which will include the subtraction of any carbon sequestration deemed acceptable. Our 'zero by 2040' target is a net zero target, built on the understanding since 2016 that we will require to invest in carbon sequestration to achieve it.
- 3.3. In deciding what 'counts' for the purpose of calculating net emissions, our approach is based on the following criteria:
- Does the approach follow accepted best practice guidelines?
 - Does the approach encourage tackling emissions at source as a priority and only sequester when all other avenues have been explored?
 - Does the approach allow for 'deep engagement' with the climate issue?
 - Are the emissions savings genuinely additional, and not double counted?
 - Is the approach credible for staff, students and stakeholders?
 - Is there any uncertainty as to whether emissions are actually reduced?
 - Does the approach consider wider sustainability issues including pollution, ecological impact and social impacts?
 - Can we be assured the approach generates long-term certainty over continued carbon reductions (through a range of carbon sequestration approaches)?
 - Does the approach minimise 'cash out of the door' paid to others where savings cease as soon as annual payments cease?
 - Does the approach allow us the opportunity to secure the sorts of benefits and activities that befit a University i.e. research, teaching, student experience, community engagement, policy influence?
- 3.4. Figure 3 sets out the latest assessment from the Science Based Targets Initiative on how well the various options including decarbonisation and offsets perform against the requirements of current climate science (offsets referred to here as 'removal activities'). It remains the case that directly ceasing the use of fossil fuels is the best approach (but not currently possible for aviation) alongside minimising our demand for and use of energy. We have completed a short review of the literature (which gives a similar message on the credibility of 'offsetting').
- 3.5. In taking account of the above points, it is clear that the only defensible position is to adopt an approach to meeting our net zero target using **direct carbon sequestration alone**- that is, we will only pursue approaches within our own scope of activities, either directly controlled or in active partnership (referred to in Figure 3 as 'removals within the value chain').
- 3.6. Our approach therefore rules out transactional, market based approaches that others, including other Universities, may adopt. Table 1 summarises the performance of both against the criteria in 3.3.

Figure 3 – Science-based targets table

Towards net-zero | Assessment of mitigation approaches against guiding principles

	Effectiveness to neutralise impacts from the company on the climate	Consistency with 1.5°C mitigation pathways	Effectiveness to mitigate climate-related transition risks	Effectiveness to drive transformation and to inform long-term strategies and investments
Decarbonisation	High	As long as decarbonisation happens in line with 1.5°C pathways	High	High
Balance of emissions with removals within the value chain	Depending on the permanence of sequestration	Consistent only when removals are permanent and limited to balancing residual emissions	In some cases	In some cases
Balance of emissions with carbon credits from removal activities	Depending on the permanence of sequestration	Consistent only when removals are permanent and limited to balancing residual emissions	Limited	Limited
Balance of emissions with avoided emissions through the use of sold-products	Limited	Not consistent	In some cases	Limited
Balance of emissions with carbon credits from reduction activities	Limited	Not consistent	Limited	Limited

Note: The assessment has been conducted applying the GHG balance sheet to the different mitigation approaches

#sciencebasedtargets

Table 1 - Carbon Sequestration Verses Carbon Offsets

Criterion	Direct Carbon Sequestration	Carbon Offsets
Follows emerging best practice?	Yes	No
Encourages tackling emissions at source?	Potentially- as long as we take action across all areas	Tends to suggest a simple payment 'covers all' and does little to engage the broader community or consider wide questions
Allows for deep engagement?	Yes- via an ongoing relationship	No, usually transactional (with some exceptions)
Savings genuinely additional?	Yes- we will only proceed on that basis (requires long term commitment)	Unclear and difficult to prove
Credible to staff, students and stakeholders?	Yes- though communications needs to be correct to explain the concepts involved	Unlikely based on feedback and discussions
Uncertainty over reductions?	Minimised to the extent possible (risks will always be present)	Considerable- evidence suggests guarantees for the long-term are not always very credible
Considers wider sustainability questions?	Yes- we can ensure the approach does	Sometimes/depends on the offset standard/project
Assurance for the long-term?	Yes- we can control via ownership or long-term agreements (subject to risks on pests, disease etc.)	Very difficult to be assured- contractual mechanisms mean we are 'at a distance' and 'look through' is difficult
Minimises cash out of the door for transactional relationships?	Yes- may be more expensive (possibly) in short-term but develops assets and experience over time	No- benefits flow from a cash transaction and cease as soon as payments cease

4. Implications

- 4.1. The implications for adopting this approach are to rule-in certain approaches and rule-out others, noting that our approach may differ to various large corporates and indeed Universities. [In what follows we include options that technically are conveying the right to an emissions factor reduction rather than strictly removal enhancements.]
- 4.2. Ruled In: Direct ownership of forests, peatlands or windfarms and solar facilities, or active partnerships on forests, peatlands or wind/solar activities.
- 4.3. Ruled out: Power Purchase Agreements (PPAs) for wind and solar facilities; market based payments for green power tariffs; market based payments for green gas tariffs; investment-led purchase of shares or funds in green power, or forests. Note that ruling something out for the purpose of meeting our carbon emissions targets does NOT necessarily mean we do not participate- for example we may decide for other reasons to invest in a green power fund. In its simplest form, we are choosing quality over quantity and preferring additionality, credibility and co-benefits, rather than cheaper, less credible, less additional, and more passive approaches.