



Renewable Energy Procurement & Carbon Offsetting

Draft guidance - for Industry Consultation

Issued 27th October 2020



Contents



User information:

- [Slide 4](#) • **How to use this pack and give feedback**
- [Slide 7](#) • **Context of this draft guidance**
- [Slide 11](#) • **Summary of consultation questions**

Consultation sections for review:

- [Slide 15](#) • **Net zero in operations: fossil fuel use**
- [Slide 21](#) • **Renewable electricity procurement**
- [Slide 38](#) • **Carbon offsetting**
- [Slide 60](#) • **Carbon accounting**

User Information

How to use this pack + give feedback

How to use this pack



Each slide has been colour-coded to assist the review of this draft guidance:

 **Orange slides** outline the proposed requirements under consultation

 **Blue slides** provide background context and supporting information to the requirements

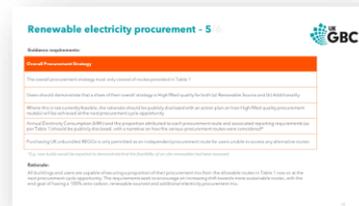
It is recommended that Reviewers read through these slides, as they provide insight as to how and why the requirements were developed

 **Gold slides** summarises the consultation questions relating to that section

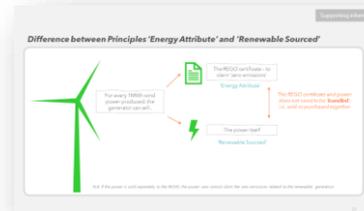
Each section is typically comprised of:



A short introduction



The requirements



Supporting information



Consultation questions

How to give feedback



- **It is recommended that Reviewers read through the pack in its entirety first** – this will ensure you have an understanding of how all the requirements relate to one another
- **There are 24 questions in total** – these are summarised after each section, but a full list is also available on [Slide 11](#).
- **To feedback your comments** – click on this [Survey Link](#) – this has all the questions pre-loaded; you will need to have this pack on hand for the question context

You **do not** need to answer all the questions – Reviewers who have a particular expertise or interest in a certain area can respond to questions relevant to that section only. You are able to ‘skip’ questions within the survey.

The deadline to provide feedback is **Tuesday 17th November 2020**.

There are also two consultation workshops for those who wish to discuss the draft guidance in more detail – these are being hosted on Thursday 5th and 12th November 2020. Details on how to sign up are [available here](#). We would encourage those that attend to still provide formal feedback via the above Survey Link to ensure their views are fully captured.



Context of this draft guidance

Context of this guidance - 1/2



This guidance will build on UKGBC's Net Zero Carbon Buildings (NZCB) Framework, which had been developed to build industry consensus on the definition of a net zero building for both construction and operations.

The framework encourages reductions in whole life carbon and improvements in energy efficiency as the most important steps in decarbonising buildings, but recognises that the procurement of renewable energy and offsets can also play a role in a building's net zero transition.

An industry [Task Group consisting of 22 organisations and 10 supporting bodies](#) was convened in July 2020 to develop further guidance of the procurement of on- and off-site renewables and to provide a set of principles for offsetting any outstanding carbon balance once building emissions have been reduced as far as possible. Feedback from this consultation will be reviewed with the Task Group, with recommended changes incorporated for the final publication in March 2021. Note that this pack has been structured for the consultation process and is not how the final guidance will be presented.

Although this guidance is primarily to support those using UKGBC's framework to develop net zero carbon buildings, much of the guidance's requirements and supporting information will be applicable to built environment businesses in their own organisational net zero strategies.



Task Group members



The task group is being supported by the following trade associations, professional institutions and non-profit organisations:



The task group is also supported by the Institute of Environmental Management and Assessment (IEMA).

Task group participants also include representatives from the following organisations:

Acclaro Advisory

AECOM

amber energy®

ARUP

BRE

Burges Salmon LLP

BuroHappold Engineering

Carbon Intelligence

Carbon Trust

The Crown Estate

Currie & Brown

Hilson Moran

Hoare Lea

JLL

Landsec

Marks & Spencer

Max Fordham LLP

Peel Energy (Peel L&P)

Syzygy Consulting

Turley

Verco

Willmott Dixon

Context of this guidance - 2/2



Organisations seeking net zero carbon for construction or in operations will be required to demonstrate alignment with the final Renewable Energy Procurement & Carbon Offsets guidance when published in March 2021.

This will be in addition to existing NZCB Framework aligned guidance, as listed below. Supporting guidance has also been provided below, which are not requirements, but can be used to demonstrate further best practice.



NZCB FRAMEWORK STEPS:

1. Establish Net Zero Carbon scope
2. Reduce construction impacts
3. Reduce operational energy use
4. Increase renewable energy supply
5. Offset any remaining carbon

Public disclosure

NZCB FRAMEWORK ALIGNED GUIDANCE



[RICS WLC Assessment](#)



[UKGBC Energy Performance Targets - Offices](#)



[UKGBC Guidance on Renewable Energy Procurement & Carbon Offsets - Mar 2021](#)



[UKGBC Verification requirements - webpage](#)

SUPPORTING GUIDANCE



[RIBA & LETI Embodied Carbon targets - Resi / Non-Resi](#)



[LETI Energy Performance Targets - Resi / Schools](#)



[GHG Protocol Scope 2 Guidance](#)



Summary of consultation questions

Summary of Consultation Questions - 1/2



At the end of each consultation section within this pack, the related questions have been summarised along with the available multiple choice answers. It is strongly recommended that you have this pack on hand when completing the online feedback survey for question context.

Net zero in operations: fossil fuel use

1. Do you agree with the requirements and listed exemptions for new and existing builds regarding the use of fossil fuel?
2. The guidance should not make an explicit recommendation for green gas as a procurement route now, but this should be reviewed in line with any future market changes.
3. Any further comments on the '**Net zero in operation: fossil fuel use**' section

Renewable electricity procurement

4. Do you agree with the approach taken to assess the quality of electricity procurement using the three principles of: *Energy Attribute*, *Renewable Sourced* and *Additionality*?
5. Do you agree with the assessment of allowable procurement routes in Table 1 ([Slide 27](#))?
6. Do you agree with the requirements that: '*Users should demonstrate that a share of their overall strategy is High/Med quality for (a) Renewable Sourced and (b) Additionality; and, where this is not currently feasible, the rationale*

should be publicly disclosed with an action plan on how High/Med quality procurement route(s) will be achieved at the next procurement cycle opportunity?'

7. Do you agree with limiting the use of unbundled REGOs to only tenants who have no control over their energy procurement?
8. '*Annual Electricity Consumption (kWh) and the proportion attributed to each procurement route and associated reporting requirements (as per Table 1) should be publicly disclosed, with a narrative on how the various procurement routes were considered.*' Do you agree with the level of disclosure required?
9. Are these principles and requirements achievable for all building and user types?
10. Any further comments on the '**Renewable Electricity Procurement**' section

Carbon Offsetting - 'High quality' offset principles

11. Do you agree that carbon offset credits must meet the 'high quality' offset principles in order to account for and offset any carbon emissions?

Summary of Consultation Questions - 2/2



12. Do you agree that utilising existing offset mechanisms, such as the Gold Standard, is the most consistent route currently available to align with these principles and achieve the required outcomes?

Allowable carbon offset approaches

13. Do you agree that due to concerns relating to additionality and the over-estimation of carbon savings, residual carbon emissions should be offset at a ratio greater than 1:1?
14. Do you agree that the guidance should facilitate the option for Users to support UK / domestic projects?
15. Do you agree Users should have the option of choosing one of the two proposed carbon offsetting approaches to take? Or should the guidance explicitly recommend one approach?
16. (A) Do you agree that a minimum pre-defined carbon price should be set for the Transition Fund approach?
- (B) If you agree that there should be a minimum or recommended pre-defined carbon price for the Transition Fund approach, what are your thoughts on this being based on the HM Treasury Green Book Non-traded central scenario?
17. Do you agree that the choice / priority of the carbon offset projects should be left open to the individual organisations to decide on? With the caveat that

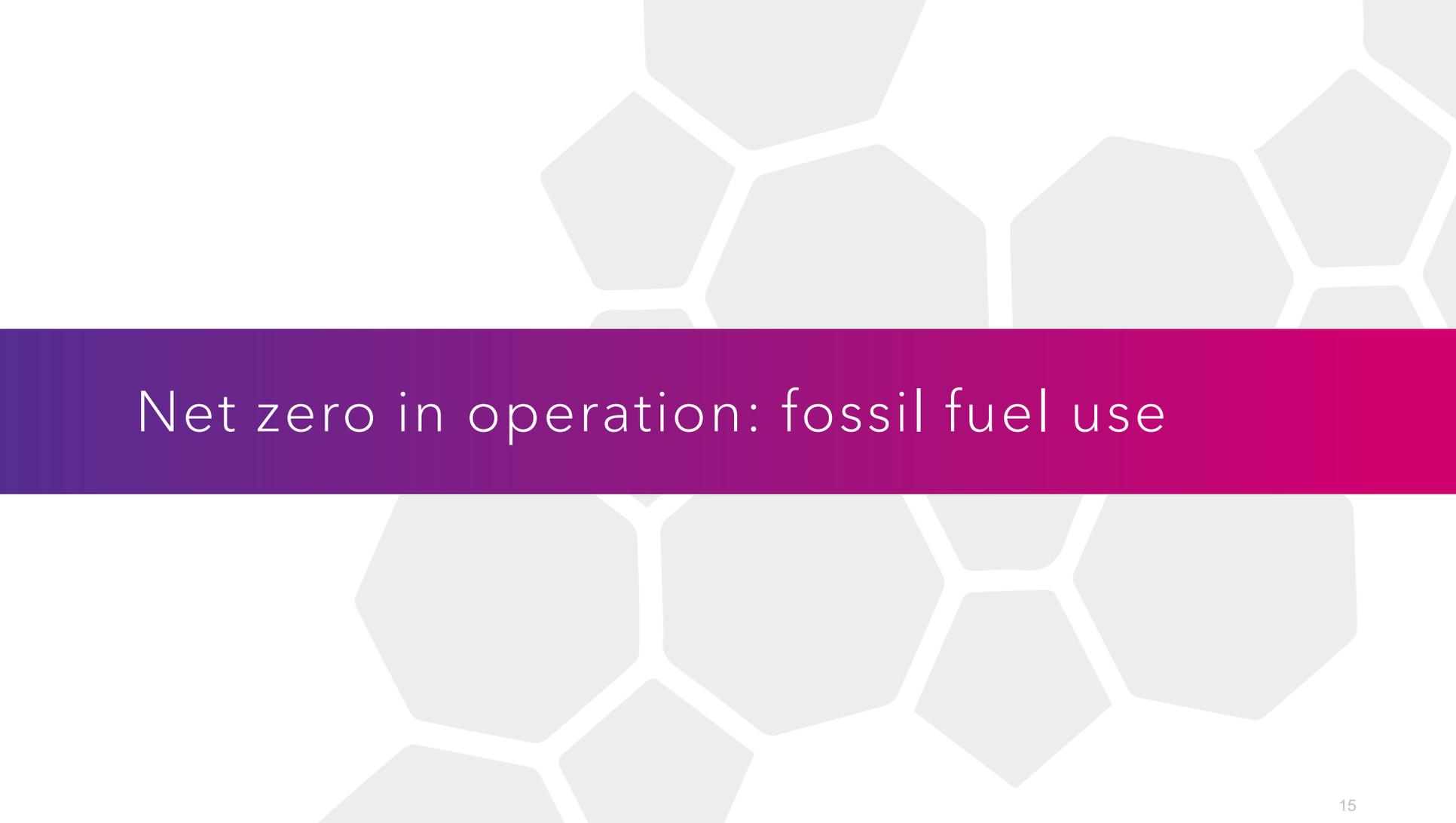
once carbon removals and long-lived storage options become more commercially viable, these projects are to be prioritised.

18. Any further comments on the '**Carbon Offsetting**' section.

Carbon Accounting

19. Do you agree that dual reporting as recommended by the GHG Protocol Scope 2 guidance should be required?
20. Do you agree that the residual carbon balance to be offset should be calculated using the market-based emission factors?
21. Do you agree that exported renewable electricity generated should no longer be allowed to account for and offset upfront embodied carbon for net zero in construction?
22. Do you agree that exported renewable electricity can account for gas consumption, if converted to kgCO₂ savings?
23. Do you agree that all renewable generators expected to export more than a cumulative 0.5-1.0MWh over the financial year should be required to claim and retire the associated REGOs if using the export is to be used as a carbon offset?
24. Any further comments on the '**Carbon Accounting**' section

Consultation sections for review



Net zero in operation: fossil fuel use

Net zero in operation: fossil fuel use - 1/3



Fossil fuel combustion must be devalued to encourage a more rapid net zero trajectory and to prevent most costly retrofitting at a later date.

The discussion on renewable energy procurement to date has been predominately focussed on electricity procurement. This is largely due to the market maturity for renewable electricity products, such as through on-site PVs and power purchasing agreements (PPAs).

However, 21% of UK's total emissions are attributable to building space heating and hot water (1), with approximately 75% of the heating demand met by natural gas. (2) Modelling for the Committee of Climate Change (CCC) clearly outline that natural gas heating must all but be eliminated for the UK to meet its net zero target by 2050. (3)

As a result - this guidance will also address how buildings seeking net zero in operational energy should deal with fossil fuel use.

New buildings have been highlighted as the most straightforward building stock to decarbonise. The CCC's report on UK housing recommended that by 2025 at the latest, no new homes should be connected to the gas grid. Supporting research has also identified that standards for new non-domestic buildings can similarly be cost-effectively tightened. (4)

However, new buildings only account for a small proportion of the challenge; approximately 80% of buildings that will be operating in 2050 have already been built. (5) This means existing stock must rapidly improve on their energy efficiency and transition to non-fossil fuel based heating. This is as reflected in the UKGBC net zero carbon building - operational energy definition:

*“ When the amount of carbon emissions associated with the building's operational energy on an annual basis is zero or negative. A net zero carbon building is **highly energy efficient** and **powered from on-site and/or off-site renewable energy sources**, with any remaining carbon balance offset. ”*

In line with the NZCB Framework principle of encouraging '**action today and tighten requirements over time**', the guidance has been focussed on outcomes that are implementable today. When alternative heat decarbonisation pathways become viable, e.g. green hydrogen, the guidance will be updated to reflect these changes.

Net zero in operation: fossil fuel use - 2/3



Guidance requirements:

New Build	Existing
All new buildings should be net zero ready	All buildings should be net zero ready at the next system replacement cycle
Heating and hot water should not be generated using fossil fuel	Heating and hot water should not be generated using fossil fuel

Net zero ready means the building is compatible with a net-zero emissions society; i.e. a highly energy efficient building with systems compatible with being powered from on-site and/or off-site renewable energy sources.

Scope of requirements:

- All new buildings and major refurbishments targeting net zero in construction should be designed to the requirements for net zero operational energy
- The definition for net zero carbon - operational energy covers energy used for heating and cooling, cooking, lighting and plug-loads but excludes commercial process loads and transport (electric vehicle charging).

Net zero in operation: fossil fuel use - 3/3



Guidance requirements - specific exemptions:

New Build	Existing
<p>Fossil fuel combustion may only be employed in situations where it can be demonstrated that there is no other viable alternative, or where the choice of heat source is beyond the control of the client. This could include, for example, backup generators for critical infrastructure or where connection to an existing District Heating system is unavoidable.</p>	<p>Replacement of fossil fuel systems with a low carbon alternative should be made a priority at the next system replacement cycle. This may require commensurate improvements in fabric performance and thus, where this is not immediately feasible, a clear trajectory should be set out showing how and when fossil fuels will be phased out.</p> <p>Beyond this, fossil fuel combustion may only be employed in situations where it can be demonstrated that there is no other viable alternative, or where the choice of heat source is beyond the control of the client. This could include, for example, backup generators for critical infrastructure or where connection to an existing District Heating system must be maintained.</p>

Future developments:

The guidance does not currently make an explicit recommendation for green gas as a procurement route, although this is still allowable as part of a building's net zero operational energy strategy subject to the above requirements. See the next slide for further details. If and when the green biomethane and/or green hydrogen market becomes commercially available and widely accessible, the guidance will be updated to reflect these changes.

Green gas certificates

Unlike for electricity, Ofgem does not administer a 'green certificate' scheme for gas to provide transparency to consumers about the proportion of gas that suppliers source from renewable generation.

Instead, there are two industry-led providers of Green Gas certification:

- [Green Gas Certification Scheme - Renewable Gas Guarantees of Origins \(RGGOs\)](#)
- [Green Gas Trading Ltd - Biomethane Certification Scheme \(BMCs\)](#)

As per the GHG Protocol guidance, Scope 1 CO₂ emissions from gas consumption can be zero emissions if matched by green gas certificates in conformance to its quality criteria. Biogenic CO₂ should be reported separately, as should fugitive CH₄ and N₂O emissions.

Green gas tariffs - current UK market

The majority of green gas tariffs provide a small proportion (6%+) that is RGGO/BMC backed, with the remainder fossil-fuel sourced but offset by the supplier through the voluntary offset market - hence sold as a 'carbon neutral' tariff.

The UK biomethane to grid capacity is currently less than <1% of overall national gas consumption. (6) Given the immaturity of the market, and that the currently capacity for 100% green gas tariffs is severely limited in the UK - the guidance will not make an explicit recommendation for green gas as a procurement route.

If and when green biomethane or green hydrogen becomes commercially viable and widely accessible, the guidance will seek to reflect these market changes where appropriate.

Biomethane - 'Green Gas'

'Green gas' products that are commercially available today relate to biomethane:

- Biomethane can be produced from a range of sources, including biogas from anaerobic digestion, landfill gas and synthetic gas from the gasification of biomass
- Biogas is converted into biomethane through the removal of CO₂
- Biomethane can then be treated to ensure pipeline quality, for injection into the National Grid

Consultation Questions

Net zero in operation: fossil-fuel use



1. Do you agree with the requirements and listed exemptions for new and existing builds regarding the use of fossil fuel?
Strongly agree / agree / disagree / strongly disagree. [[Open comment box](#)]
2. The guidance should not make an explicit recommendation for green gas as a procurement route now, but this should be reviewed in line with any future market changes.
Strongly agree / agree / disagree / strongly disagree. [[Open comment box](#)]
3. Any further comments on the '**Net zero in operation: fossil fuel use**' section
[[Open comment box](#)]



Renewable electricity procurement

Renewable electricity procurement - 1/6



Corporate sourcing of renewables has the potential to drive significant additional investment in renewable energy

Studies by the CCC and within the Future Energy Scenarios (FES) 2020 both highlight the importance of grid decarbonisation in the UK's trajectory to net zero. The latter suggests that net zero emissions by the power sector should be achieved by 2033 (7), which will require significant investment in additional renewable electricity generation.

Given this, and the dependency of other sectors - including heat - on electricity decarbonising, two implications are clear:

- **On-site measures continue to take priority** as this both supports an increase in total UK supply of renewable-sourced electricity, whilst simultaneously reducing demand on the grid; and
- **Off-site measures should prioritise procurement routes that can demonstrate credible additionality**, such as PPAs with new renewable generators

Existing initiatives, such as the [GHG Protocol Scope 2 Guidance](#) and [RE100](#), already provide guidance on making credible claims on renewable electricity usage. The guidance set out here compliments these existing initiatives, but provide further clarity and direction on procurement specifically in relation the UK market today.

The intention is that organisations of all sizes, and buildings seeking net zero in operational energy, can use this guidance to more readily assess their electricity procurement options and plan for a net-zero compatible transition.

It is expected that significant market changes will occur over the 2020s, such as the increased viability of multi-PPAs. Should any of these developments impact the guidance as it stands, UKGBC will seek to update the recommendations where applicable and appropriate.

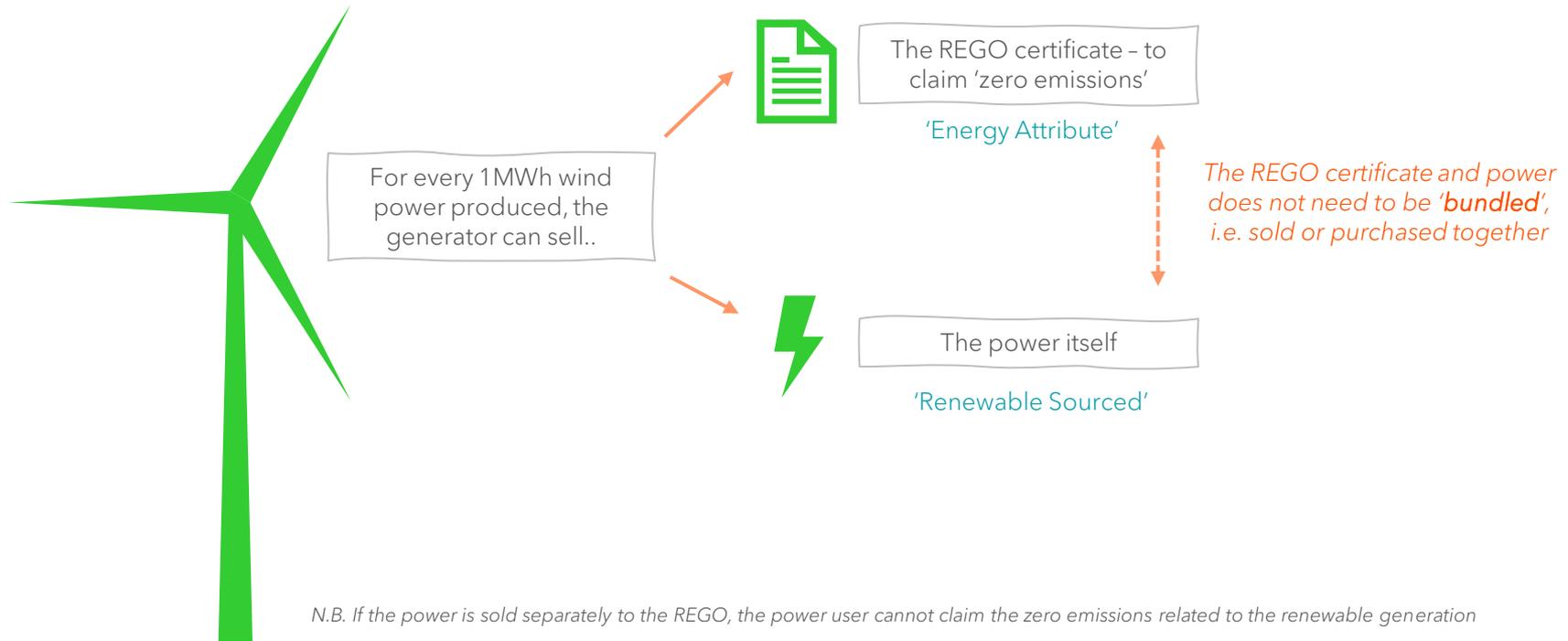
Renewable electricity procurement - 2/6



The quality of electricity procurement is to be assessed using three principles: ownership of the Energy Attributes, Renewable Sourced and Additionality

Principle	Definition	Source
1. Energy Attribute	<i>Exclusive ownership and claims (no double counting) of the energy attributes of the renewable electricity generated, either through onsite self generation and consumption, e.g. 'behind the meter', or via Renewable Energy Guarantees of Origins (REGOs) certificates. For the full criteria, refer to the linked RE100 source.</i>	RE100 Making credible renewable electricity usage claims
2. Renewable Sourced	<i>Renewable non-fossil fuel energy sources, that is, wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases.</i>	Electricity (Guarantees of Origin of Electricity Produced from Renewable Energy Sources) Regulations 2003 (SI 2003/2562)
3. Additionality	<i>The principle of additionality applies when a corporate self-generates renewable energy from their own facilities or closes an electricity purchasing contract that contributes to the construction of new renewable energy facilities.</i> <i>Projects that comply with the principle of additionality result in real and verifiable emissions reduction or emissions avoidance for the corporate, as their direct effect is to increase renewable energy generation.</i>	Adapted from RE-Source Introduction to Corporate Sourcing of Renewable Energy

Difference between Principles 'Energy Attribute' and 'Renewable Sourced'



What is a REGO?



Each Renewable Energy Guarantees of Origins (REGO) represent the 'energy attribute', i.e. the zero GHG emissions, associated with 1MWh of renewable energy generated.

How are they used?

The REGO scheme is administered by Ofgem. It was set up to provide consumers transparency about the proportion of electricity that suppliers source from renewable generation.

Electricity suppliers require REGOs for their [Fuel Mix Disclosure \(FMD\)](#) which requires all electricity suppliers in the UK to disclose to their customers the mix of fuels used to generate the electricity annually. This is the main use of REGOs in the UK. Suppliers can also purchase the European equivalent, Guarantees of Origins (GoOs) for this purpose.

Organisations can also buy REGO certificates separately to their power procurement for their Scope 2 accounting.

Why are there concerns around 'greenwashing'?

- REGOs can be sold independently to the power itself - this is referred to as being '**unbundled**'
- REGOs ensure that the energy attribute *relating* to the renewable energy generated is 'ear-marked' for you. However, as they can be unbundled from the power, **this allows green electricity tariffs consisting of brown power to be sold as 100% renewable energy if matched by 100% REGOs**
- Under FMD, Suppliers are not required to generate renewable electricity themselves, or have PPA contracts in place to buy it directly from renewable generators - hence **there can be little incentive for Suppliers to drive additional investment in renewable electricity**
- There is significant supply of REGOs compared to demand - **meaning certificates can cost as low as £0.20p/REGO (8)**
- For an average household using 3,600kWh/year electricity, it can cost the Supplier as little as £0.72 to market the product or tariff as 'green'
- **Transparency of the UK market is limited** - there is no current legislation that governs the terminology of the green tariff market and how products can be marketed and sold to consumers

Renewable electricity procurement - 3/6



The following key has been used to assess the common electricity procurement routes in Table 1 (next slide)

- The intention of Table 1 is to more clearly differentiate the merits of each procurement route
- This will allow corporates to better evaluate the efficacy of their overall procurement mix and to identify how they may improve the quality of their mix, against each principle, going forward

	Energy Attribute	Renewable Sourced	Additionality
High	Behind the meter, REGOs or GoOs	100% Renewable Sourced Electricity	Provides additionality now
Med			Provides additionality in the future
Low		Mix of Renewable Sourced and Fossil Fuel generated electricity	Possible to support additionality, but not definite - dependent on situation

Renewable electricity procurement - 4/6



Table 1 Allowable Procurement Routes

Electricity Procurement Route		Key Principles for Best Practice			Reporting required	Notes
		Energy Attribute	Renewable Sourced	Additionality		
Onsite	Owned (e.g. PVs)	High	High	High	Electricity generation metered and annually disclosed	Onsite renewable energy is still considered a priority over all types of off-site models or variants, where possible, due to carbon savings from non-commodity grid costs, etc.
	PPA - w/New (inc. private wire)	High	High	High		
Offsite	Physical PPA - w/New	High	High	High	REGOs to be bundled and retired in the <i>Renewables and CHP Register</i> , inc: Generation Station, Technology, Output Period, No. of Certificates, Retirement Date and Holder Organisation Name	This would include circumstances where a generator is looking at repowering (e.g. putting in larger wind turbines) and has significant capital costs, including relating to new planning permissions, etc. that require PPA revenue stream to be economically feasible.
	Virtual PPA - w/New	High	High	High		
	Physical PPA - w/Existing	High	High	Low		Additionality may be secured for existing plants reaching the end of a subsidy that would otherwise not be economically viable for continued operation, but it is noted that this is not a common situation in the UK.
	Virtual PPA - w/Existing	High	High	Low		
Green tariff supply contract from	Supplier with 100% Renewable Sourced tariffs only - 'high quality green tariffs'	High	High	Med	Supplier and green tariff name, and where readily available the % that is renewable sourced from self-generation or via direct PPAs with renewable generators	100% of renewable sourced electricity from self-generation, or via direct PPA with renewable generators
	All other suppliers - 'low quality green tariffs'	High	Low	Low		Suppliers' 'green tariffs' includes brown (non-renewable) electricity bought from the wholesale market, but 100% backed by purchased REGOs

For tenants with no control over their energy procurement only:

Energy Attribute Certificates	UK REGOs only (unbundled)	High	N/A	Low	<i>Renewables and CHP Register</i> REGO entry as above	User is purchasing the energy attribute benefits of renewable electricity, but not the power itself, hence N/A for Renewable Sourced.
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Green supply contracts: See [Slides 29](#) and [30](#) for details on how to differentiate between Suppliers

What is a PPA?

A corporate Power Purchasing Agreement (PPA) is an electricity supply contract between a **renewable power generator(s)** and a **corporate buyer(s)**.

The PPA contract structure can take multiple forms, which have different volume, price and profile risk allocations. Corporate PPAs provide developers with long term revenue stability which allows them to obtain financing to build new renewable energy projects – whilst the buyer can gain competitive advantage by securing renewable electricity at long-term, fixed price certainty whilst demonstrating sustainability leadership.

There are two common types of Corporate PPAs:

- Direct PPA (also known as Physical PPA)
- Virtual PPA (also known as Financial or Synthetic PPA)

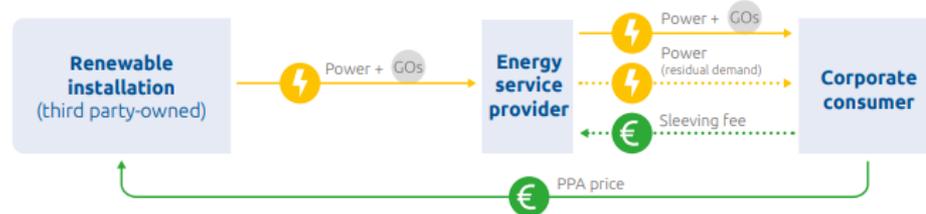
Historically, Direct PPA contracts have been longer term commitments of 10-15+ years, but the market is beginning to see shorter structures for Virtual PPAs.

A more detailed overview of Corporate PPAs, its benefits and allocation of risks is available from the [RE-Source Buyers' Toolkit](#).

Images source: [RE-Source](#)

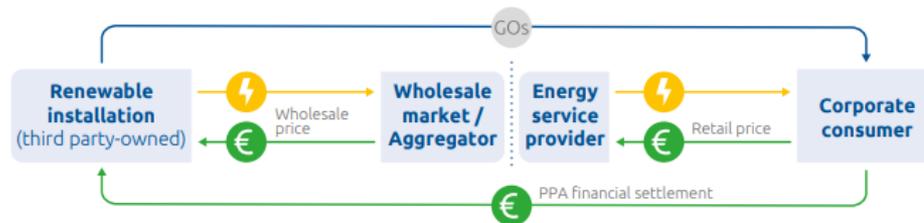
Direct PPA

The corporate buyer enters simultaneously into a PPA with the generator and purchases the electricity (and REGOs) and a back-to-back retail supply agreement with a licenced supplier, which in turns sleeves and delivers the electricity to the corporate.



Virtual PPA

A virtual PPA is effectively a Contract for Difference – the generator and corporate buyer agree a 'strike price' for the electricity and a market-based reference price over the duration of the contract. There is no physical transmission of power between the two counterparties (the generator has a separate PPA with a licenced supplier), but the REGOs can be transferred to the corporate buyer as part of the contract.



Green tariffs (supply contracts) and their Suppliers

Table 1 makes a distinction between green tariff Suppliers based on its alignment with the Renewable Sourced and Additionality principles.

Suppliers with 100% Renewable Sourced tariffs only

These are Suppliers that only:

1. Generate their own renewable electricity; and/or
2. Purchase renewable electricity via a PPA direct from generators (i.e. not just the REGOs)

There are currently only three UK energy suppliers that have been recognised as such, and [permanently exempt from the energy price cap](#) by Ofgem: [Ecotricity](#), [Good Energy](#) and [Green Energy](#).

As part of this exemption, Suppliers have to demonstrate that the cost of supplying electricity is materially greater than the default tariff cap for reasons directly attributable to the support the tariff provides to renewable energy. Evidence includes having PPAs in place with generators that otherwise would not be financially feasible and planning permission documents for development new renewable energy generation sites.

For these types of Suppliers, the principle of Renewable Sourced is met with confidence, and Additionality is provided in the future through reinvestment of funds into new renewable generation.

All other Suppliers

All other Suppliers tend to fall under two broad categories:

1. Suppliers that offer 100% REGO-backed tariffs only
2. Suppliers that offer 100% REGO-backed tariffs alongside standard tariff offerings

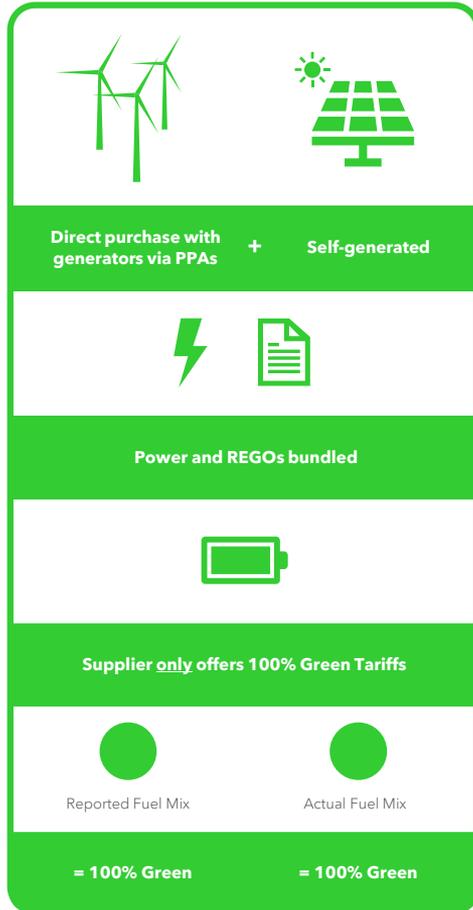
The majority of green tariffs marketed in the UK have a brown fuel mix that is 100% REGO backed. This means that green tariffs can consist of fossil fuels but can be sold as 'green' because it has purchased the equivalent amount of REGOs.

The core difference between the two categories are:

- Suppliers that *only* offer 100% REGO-backed tariffs *must* purchase additional REGOs for each new customer
- Suppliers with standard tariff offerings - the standard tariff carbon intensity may be higher than the grid; this is notable for organisations with an active fossil fuel divestment strategy

For these types of Suppliers, there is lower certainty that the power is Renewable Sourced, and that corporate procurement drives additionality.

Supplier with 100% Renewable Sourced Tariffs only



All other Suppliers



Difference between Green Tariff Suppliers

Renewable electricity procurement - 5/6



Guidance requirements:

Overall Procurement Strategy

The overall procurement strategy must only consist of routes provided in Table 1

Users should demonstrate that a share of their overall strategy is High/Med quality for both (a) Renewable Source and (b) Additionality

Where this is not currently feasible, the rationale should be publicly disclosed with an action plan on how High/Med quality procurement route(s) will be achieved at the next procurement cycle opportunity

Annual Electricity Consumption (kWh) and the proportion attributed to each procurement route and associated reporting requirements (as per Table 1) should be publicly disclosed, with a narrative on how the various procurement routes were considered*

Purchasing UK unbundled REGOs is only permitted as an independent procurement route for users unable to access any alternative routes

**E.g. new builds would be expected to demonstrate that the feasibility of on-site renewables had been assessed*

Rationale:

All buildings and users are capable of securing a proportion of their procurement mix from the allowable routes in Table 1 now or at the next procurement cycle opportunity. The requirements seek to encourage an increasing shift towards more sustainable routes, with the end goal of having a 100% zero-carbon, renewable sourced and additional electricity procurement mix.

Renewable electricity procurement - 6/6



Alignment to UK / Global net zero trajectory:

Net-zero compatible scenarios as modelled by the National Grid's Future Energy Scenarios and the CCC have highlighted the importance of the grid rapidly decarbonising to reach net zero by 2050. To do so, the UK must increase its total supply of renewable electricity whilst simultaneously reducing demand on the electricity grid. As per the current NZCB Framework, on-site renewable energy generation is prioritised over off-site procurement as it achieves both of these aims

Looking forward - future developments

The requirement to only demonstrate a *share* now is based on the limited availability of existing market mechanisms, but it is expected that both the markets for Power Purchasing Agreement and high quality Green Tariff offerings will open up in the upcoming half-decade. The NZCB Framework requirement for public disclosure will help provide greater transparency, and in turn highlight the increasing consumer demand for sustainable procurement routes to both electricity suppliers and landlords.

There is not currently a requirement for buildings and users to demonstrate that a *minimum share* of their procurement is Med/High quality. However, given the expected market growth, there is an expectation that an increasing share of the procurement mix will demonstrate Med/High quality across each procurement cycle.

Future updates of the guidance will be in line with significant market changes. This may include (1) updated Table 1 assessment for allowable procurement routes, including the potential removal of lower quality Green Tariffs and (2) tighter requirements on the overall procurement mix.

Example allowable procurement routes: **Owner-Occupier**

OVERALL PROCUREMENT MIX - IN OPERATION

ALIGNMENT TO GUIDANCE?

Owner-Occupier A procures:



- Electricity procurement mix consists only of routes in Table 1
- A share is 'High/Med' in *additionality* and *renewable sourced*

Owner-Occupier B procures:



- Electricity procurement mix **does not** consist only of routes in Table 1
- Cannot procure Unbundled REGOs to match standard tariff as they have control over their own energy procurement
- **Owner-Occupier B does not meet the requirements, and cannot seek net zero in operation**
- To align with the guidance, they must shift their standard electricity tariff to a green tariff as a minimum - either at next procurement cycle, or earlier if preferred

Example allowable procurement routes: **Tenant, with control over own procurement**

OVERALL PROCUREMENT MIX - IN OPERATION

ALIGNMENT TO GUIDANCE?

Tenant A procures:

STANDARD ELEC TARIFF

- Cannot procure Unbundled REGOs to match standard tariff
- **Tenant A does not meet the requirements, and cannot seek net zero in operation**
- To align with the guidance, they must shift their standard electricity tariff to a green tariff as a minimum – either at next procurement cycle, or earlier if preferred

X

Tenant B procures:

LQ GREEN ELEC TARIFF

GREEN GAS TARIFF

- Electricity procurement mix only consists of routes in Table 1
- Green gas tariff is purchased, therefore no need to offset gas consumption later
- **Tenant must create an action plan** demonstrating how they will shift a proportion of their electricity mix to a High/Med additionality and renewable sourced route at the next procurement cycle

✓

Example allowable procurement routes: **Tenant, with no control over procurement**

OVERALL PROCUREMENT MIX - IN OPERATION	ALIGNMENT TO GUIDANCE?
<p>Landlord A procures:</p> <div data-bbox="139 372 1323 456" style="border: 2px solid green; padding: 5px; display: flex; justify-content: space-around;"> LQ GREEN ELEC TARIFF GREEN GAS TARIFF </div> <ul data-bbox="160 481 1290 565" style="list-style-type: none"> • Landlord A's tenant is still expected to explore how they can move towards the highest quality green tariffs at the next opportunity - through discussions with their landlord on the procurement at the next cycle, or via their lease agreement 	
<p>Landlord B procures:</p> <div data-bbox="139 637 1323 721" style="border: 2px solid gold; padding: 5px; display: flex; justify-content: space-around;"> STANDARD ELEC TARIFF STANDARD GAS TARIFF </div>	
<p>Landlord B's tenant procures:</p> <div data-bbox="139 770 1323 855" style="border: 2px solid green; padding: 5px; display: flex; justify-content: space-around;"> UNBUNDLED REGOs CARBON OFFSETS </div> <ul data-bbox="160 880 1263 964" style="list-style-type: none"> • They align with the guidance and seek net zero in operations, Landlord B's tenant must procure unbundled REGOs to match their standard electricity tariff, and offset their gas consumption • They would also be expected to explore future procurement with their landlord as above 	

LQ = Low quality (Refer to [Slide 27, Table 1](#))

Example allowable procurement routes: *Developer, new build, to lease out*

OVERALL PROCUREMENT - DEVELOPER'S RESPONSIBILITIES

The developer is expected to:

- Ensure the building is net zero ready and will not utilise fossil fuel combustion
- Assess and publicly disclose the viability of applicable procurement routes, e.g. onsite renewables
- Offset A1-A5 upfront carbon if seeking to achieve net zero carbon in construction as per NZCB Framework

Note that the developer would also be expected to design to reduce operational energy use as a first priority.

ALIGNMENT TO GUIDANCE?



Consultation Questions

Renewable electricity procurement



4. Do you agree with the approach taken to assess the quality of electricity procurement using the three principles of: *Energy Attribute*, *Renewable Sourced* and *Additionality*?
Strongly agree / agree / disagree / strongly disagree. [Open comment box]
5. Do you agree with the assessment of allowable procurement routes in Table 1 ([Slide 27](#))?
Strongly agree / agree / disagree / strongly disagree. [Open comment box]
6. Do you agree with the requirements that: *'Users should demonstrate that a share of their overall strategy is High/Med quality for (a) Renewable Sourced and (b) Additionality; and, where this is not currently feasible, the rationale should be publicly disclosed with an action plan on how High/Med quality procurement route(s) will be achieved at the next procurement cycle opportunity.'* Please comment on both parts of the requirements.
Strongly agree / agree / disagree / strongly disagree. [Open comment box]
7. Do you agree with limiting the use of unbundled REGOs to only tenants who have no control over their energy procurement?
Strongly agree / agree / disagree / strongly disagree. [Open comment box]
8. *'Annual Electricity Consumption (kWh) and the proportion attributed to each procurement route and associated reporting requirements (as per Table 1) should be publicly disclosed, with a narrative on how the various procurement routes were considered.'* Do you agree with the level of disclosure required?
Strongly agree / agree / disagree / strongly disagree. [Open comment box]
9. Are these principles and requirements achievable for all building and user types?
Yes / Most / Some / Not achievable for majority [Open comment box]
10. Any further comments on the **'Renewable Electricity Procurement'** section
[Open comment box]



Carbon offsetting

Introduction to Carbon Offsetting - 1/2



Carbon offsetting presents an opportunity beyond emission reductions to develop a broader value proposition that is aligned to long-term business strategies and/or supports the UK's and global transition to net zero.

To meet the Paris Agreement's goal of limiting global warming to 1.5°C, society must rapidly transition towards net zero carbon emissions by mid-century. This requires all sectors to substantially reduce its emissions before balancing any residual emissions with removals on an ongoing basis.

A growing number of organisations have pledged to achieve net zero emissions. As a result, voluntary carbon offsetting is increasingly being utilised as part of an organisation's climate strategy and transition to net zero. Whilst the emphasis remains firmly on reducing emissions in line with science first, initiatives such as [WorldGBC's Net Zero Carbon Buildings Commitment](#) and [Science Based Targets](#) recognise that carbon offsets can play a critical role in accelerating the transition to net zero emissions at the global scale. However, the credibility and integrity of carbon offsets have frequently been called into question.

This guidance seeks to mitigate the underlying risks behind these concerns to ensure organisations avoid purchasing low-quality offsets, and are able to deliver credible net zero buildings and/or decarbonisation strategies.

Voluntary offset market - why the concerns?

The volume-weighted average price per metric ton of CO₂ saved through carbon offset projects was USD \$3.01 in 2018, the lowest recorded since reliable tracking of the voluntary market began in 2006. (9) Average prices of voluntary offsets have historically remained well below average prices in compliance markets around the world, and significantly lower than the USD \$40-80 per metric ton that the CPLC / World Bank estimates to be necessary to achieve the goals of the Paris Agreement. (10) Despite the expected future growth in the market, the significant surplus of credits available for purchasing to comparatively low demand has kept today's prices low.

The low prices also raises questions around how additional some of these projects are, a concern highlighted by a report commissioned for the European Commission DG-CLIMA which states that the majority of CDM projects (an estimated >70%) have a low likelihood that emission reductions are additional and are not over-estimated. (11) It was also noted that the results of the analysis are to a large extent also relevant and valid for voluntary crediting mechanisms, such as the Gold Standard and the Verified Carbon Standard.

Introduction to Carbon Offsetting - 2/2



Carbon offsetting presents an opportunity beyond emission reductions to develop a broader value proposition that is aligned to long-term business strategies and/or supports the UK's and global transition to net zero.

This presents a couple clear issues:

- 1. It is clear that there should be greater confidence that, on a building level, net zero is achieved.** For this reason, simply offsetting the residual carbon emissions on a 1:1 ratio was felt insufficient. As a result, a more flexible form of 'discounting' offset purchases has been utilised in the guidance's recommendations to help combat this quality risks. [\(12\)](#) 'Discounting' is a strategy whereby extra credits are bought and retired in a hedge against the risk that some credits may be associated with GHG reductions that are non-additional, over-estimated, non-permanent, etc.
- 2. It is clear that greater support is required in the market for net zero aligned offsetting, particularly in the development of required long-lived storage GHG removals** that are critical for both the UK and global emissions to reach net zero. [\(13\)](#) [\(14\)](#) Creating demand for these type of offsets will help stimulate market growth and supply of such, which in turn will promote a more appropriate reflection of offset pricing for net zero. This is particularly important for the UK, which currently lacks a national offsets market mechanism.

These two issues must also be reconciled with prioritising stronger action *earlier* to reduce your organisations' own emissions, thereby minimising the need for offsetting in the first place. The 'discounting' strategy, even in a more flexible form, can help promote this given it effectively increases the cost of carbon for the user - whilst the NZCB Framework itself promotes action today (with improvements over time) and the need to counterbalance the impacts of any residual emissions on an ongoing basis.

This guidance sets out two approaches that addresses the above issues in different ways.

By providing the user the options of two approaches, each organisation has the flexibility to select an approach best suited to their situation whilst safeguarding a higher assurance that their actions are net-zero aligned.

The two approaches should be seen as equally valid options for compliance with the NZCB Framework, however for organisations seeking to further their net zero agenda at a more rapid trajectory, the latter approach '*Transition Fund*' is more appropriate.

What is a Carbon Offset?

The terms **Carbon Offset** and **Carbon Offset Credit** are used interchangeably:

- Carbon Offset means emission reductions / removals achieved by one entity can be used to compensate (i.e. offset) emissions from another entity.
- A Carbon Offset Credit refers to the transferable instrument certified by governments or independent certification bodies to represent an emission reduction of one metric tonne of CO₂ or CO₂e.

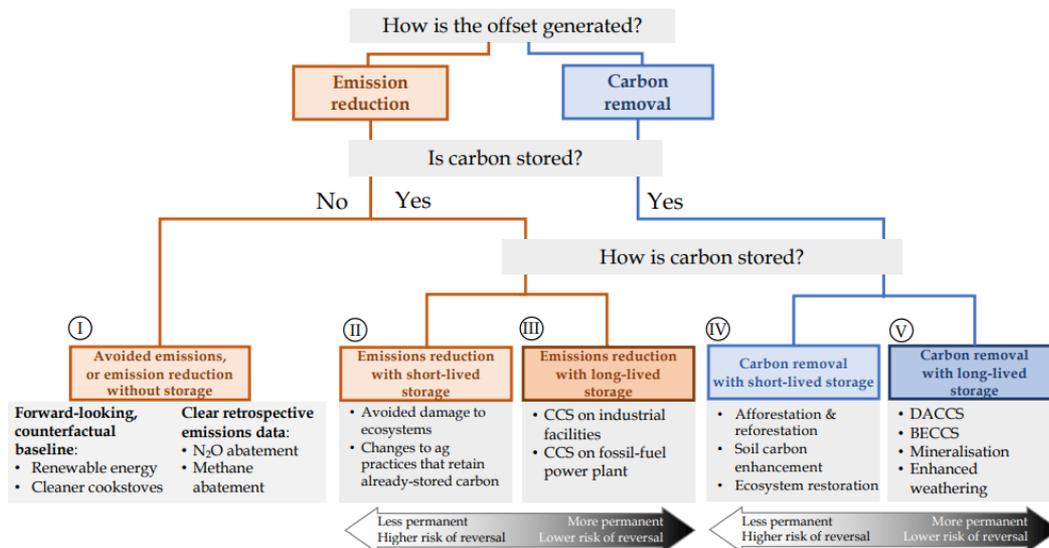
Any Carbon Offset Credits bought must be 'retired' in a registry for the purchaser to claim the related reductions / removals towards their own GHG reporting goals.

For more information on the relative quality risks and co-benefit opportunities of different carbon offset projects, please refer to Annex I of [Securing Climate Benefit: A Guide to Using Carbon Offset](#)

What type of offset projects are there?

Carbon offset projects can broadly be split into the following categories - although note that **(III) Emission reduction with long-lived storage** and **(V) Carbon removal with long-lived storage** are not yet commercially available.

The majority of carbon offset credits available are either 'Emission Reduction' type projects - the main route for carbon removals currently is via afforestation projects.



What Carbon Mechanisms are there?

There are two type of carbon markets: **Compliance** and **Voluntary**.

For the purpose of this guidance, only the voluntary market is applicable.

Voluntary markets function outside of compliance markets and enable companies and individuals to voluntarily offset their emissions through carbon credit purchase.

Independent crediting mechanisms are not governed by any national regulation or international treaties and are administered by private and independent third-party organisations. Examples include the Gold Standard and the Verified Carbon Standard.

The three main crediting mechanisms used in the voluntary markets by UK consumers are: Gold Standard (VCS), the Verified Carbon Standard (VCS) and the UN Clean Development Mechanism (CDM).

Plan Vivo is another smaller mechanism that is sometimes offered by providers.

Logo sources: as linked

What about the UK?

The UK does not currently have a national or regional offsets market mechanism. There was, however, a commitment in the UK Clean Growth Strategy to develop a domestic market through the 2020s to support cost-effective emission reductions, such as through afforestation and potentially other land activities.

Currently, the only established standard in the UK is the Woodland Carbon Code, with a UK Peatland Code equivalent in development.

Gold Standard



Verified Carbon Standard

A VERRA STANDARD



Plan Vivo

Carbon Offsetting labels

Each mechanism has their own label for their offset credits – but are all equivalent to an emission reduction of one metric tonne of CO₂e .

Crediting mechanism	Label used for offset credit
Clean Development Mechanism (CDM)	Certified Emission Reduction (CER)
Verified Carbon Standard (VSC)	Verified Carbon Unit (VCU)
Gold Standard (GS)	Verified Emission Reduction (VER)

There are also *additional* certifications that can be used in conjunction to certify the wider social and environmental benefits of these carbon offset credits: [SOCIALCARBON](#), [The CCB Standard](#) and [Gold Standard for the Global Goals](#).

Gold Standard		Geographic coverage	Global
		Countries with projects	72
		Price in 2018	US\$4/tCO ₂ e (unweighted average) ⁵⁹
		Carbon pricing initiatives accepting issued credits for compliance	Colombia carbon tax, CORSIA, South Africa carbon tax
		Administered by	Gold Standard Secretariat
Established in	2003	Sectoral coverage	7 sectors
Type	Independent	 0.2% Agriculture	
Registered activities	1249	 13% Energy efficiency	
Credit name	Verified Emission Reductions (VERs)	 2% Forestry	
Credits issued (MtCO ₂ e)	97	 26% Fuel switch	
Credits retired or cancelled (MtCO ₂ e)	59	 6% Fugitive emissions	
		 42% Renewable energy	
		 11% Waste	

CDM, VCS and GS summary image source: [World Bank: State and Trends of Carbon Pricing 2020](#)

Clean Development Mechanism (CDM) 		Geographic coverage Any Non Annex I country of the Kyoto Protocol ¹⁴²
Countries with projects 111		Price data for 2019 US\$0.15–0.24/tCO ₂ e ¹⁴³
Carbon pricing initiatives accepting issued credits for compliance		Colombia carbon tax, CORSIA ¹⁴⁴ , EU ETS, Mexico carbon tax, Republic of Korea ETS, South Africa carbon tax
Administered by UNFCCC	Sectoral coverage 10 sectors	
Established in 1997	 <0.01% CCS/CCU	
Type International	 6% Energy efficiency	
Registered activities 8142	 0.8% Forestry	
Credit name Certified Emission Reductions (CERs)	 4% Fuel switch	
Credits issued (MtCO₂e) 2002	 5% Fugitive emissions	
Credits retired or cancelled (MtCO₂e) 1192	 45% Industrial gases	
	 0.6% Manufacturing	
	 32% Renewable energy	
	 0.3% Transport	
	 7% Waste	

Verified Carbon Standard (VCS) ¹⁶¹ 		Geographic coverage Global
Countries with projects 72		Price in 2018 US\$3/tCO ₂ e ¹⁶²
Carbon pricing initiatives accepting issued credits for compliance		Colombia carbon tax, CORSIA, South Africa carbon tax
Administered by Verra	Sectoral coverage 10 sectors	
Established in 2005	 0.2% Agriculture	
Type Independent	 0.05% Energy efficiency	
Registered activities 1628	 42% Forestry	
Credit name Verified Carbon Units (VCUs)	 2% Fuel switch	
Credits issued (MtCO₂e) 410	 4% Fugitive emissions	
Credits retired or cancelled (MtCO₂e) 251	 2% Industrial gases	
	 2% Manufacturing	
	 45% Renewable energy	
	 0.04% Transport	
	 4% Waste	

Woodland Carbon Code

The Woodland Carbon Code (WCC) is the voluntary standard for woodland creation projects in the UK that seeks to make claims about the CO₂ sequestered.

Any organisation seeking to claim carbon sequestration through afforestation on their own land must certify with the WCC.

Any woodland seeking certification must commit to a permanent land use change to woodland and to maintaining the woodland as a carbon sink.

There are two types of carbon units that can be issued for certified projects:

***WCUs currently cannot be termed offsets or carbon credits** as they do not meet all aspects of the 'additionality' requirements, in common with all domestic emissions reduction projects - as a result, they are reported separately to international voluntary carbon credits as set out in the UK Government's Environment Reporting Guidelines

Carbon Unit	Represents	What can they be used for?
<p>Woodland Carbon Units (WCUs)</p> <p>Average Cost = not yet determined due to market maturity</p>	<p>1 tonne of CO₂ that has been sequestered in a verified woodland</p> <p>The sequestration has been independently verified and guaranteed</p>	<p>By organisations to compensate for their UK-based GHG emissions*</p> <p>By organisations in claims of carbon neutrality via PAS2060:2014</p> <p>Contribute directly to the UK's national targets for reducing GHG emissions</p> <p>Cannot be used in compliance schemes, e.g. EU-ETS</p> <p>Cannot be used for emissions outside of the UK, or emissions from international aviation or shipping</p>
<p>Pending Issuance Units (PIUs)</p> <p>Average Cost = £7 - 20 /tCO₂</p>	<p>1 tonne of CO₂ of predicted sequestration - a 'promise to deliver'</p> <p>The sequestration is not yet guaranteed</p>	<p>Can be used by organisations to plan compensation against future UK-based emissions, i.e. plan their pathway to net zero</p> <p>Can be used by organisations to make credible CSR statements in support of woodland creation</p> <p>Cannot be used by organisations to report against their UK-based emissions until verified</p> <p>Cannot be used in claims of net zero</p>

Woodland Carbon Code - current market maturity

Most units that are bought by organisations are Pending Issuance Units, i.e. in support of creating and managing new woodlands.

There is a comparatively small number of WCUs that are available for purchase, given the time it takes to verify any carbon sequestered:

- Monitoring and verification of woodland creation takes place at Year 5, then every ten years after
- In Year 5, there is only a limited level of assurance of carbon sequestered; amounts are based on projections
- From Year 15 onwards, there is a reasonable level of assurance for standard projects of the carbon sequestered; amounts are based on field survey measurements

As a result, **it can take a significant number of years before a purchased PIU can be converted to a WCU**. This does not mean that UK woodland creation should not be supported - however, it does mean that organisations seeking net zero claims or to report against international reporting requirements will need to be aware of what can and cannot be stated if only purchasing PIUs.

Beyond purchasing WCUs, organisations can support UK woodland creation in line with net zero claims via the two Carbon Offsetting approaches outlined in this guidance (details as provided on [Slide 53](#)).

Type of Unit	Available for Purchase	Bought to date by companies	Landowners 'growing their own' credits	Total
Woodland Carbon Units (WCUs)	900	5,300	800	7,000
Pending Issuance Units (PIUs)	1,177,000	1,517,000	54,000	2,748,000

Number of Carbon Units available on the UK Woodland Carbon Registry - [as of 30 September 2020](#)



Carbon Offsetting: *'High quality' offset principles*

'High quality' offset principles - 1/3



The following high quality offset principles must be met by all carbon credits to mitigate the risk of credits with poor environmental integrity.

There is no globally accepted definition for the environmental integrity of carbon credits [\(15\)](#) - however, to mitigate risks of issuing carbon credits that have poor environmental integrity, carbon crediting mechanisms follow 'high quality' offset principles that set out requirements projects must meet in order to certify and receive carbon credits:

- | | |
|-------------------------|----------------------------------|
| 1. Additionality | 5. Permanence |
| 2. Avoid leakage | 6. Independently verified |
| 3. Measurable | 7. Unique |
| 4. Real | 8. Transparency |

Definitions against each of these 'principles' vary slightly depending on the source, but generally have the same requirements. These are as provided in detail on the next few slides.

Applicability:

- **These principles apply to any carbon reductions or carbon capture projects outside of the building's energy boundaries** - i.e. purchased offsets through the voluntary market, or for landowners seeking to develop their own afforestation projects, etc. whether for organisational GHG reporting or for selling of offset credits.
- The three main voluntary offset mechanisms used by UK consumers - the CDM, the Gold Standard and the Verified Carbon Standard - all stipulate these 'high quality' principles as minimum requirements for any project seeking verification with their standard. Woodland Carbon Code units are *not* termed offsets and do not meet these principles.
- **Buildings seeking to be net zero in construction or in operation as per the NZCB Framework can only claim net zero if their residual emissions are met by carbon offsets that meet these principles.** The allowable approaches to do so are as set out from [Slide 53](#).

'High quality' offset principles - 2/3



Principle	Definition	Source
<p>1. Additionality</p> <p><i>N.B. This is different to 'Additionality' for Renewable Energy Procurement</i></p>	<p><i>Projects must demonstrate that (1) the project could not take place without the carbon finance from selling credits and (2) project-based emission reductions or removals are additional to what would have occurred if the project had not been carried out.</i></p> <p><i>The project must not be required by legislation or be used to demonstrate compliance against legally binding targets.</i></p>	<p>Adapted from: ICROA, UK Gov</p>
<p>2. Avoid leakage</p>	<p><i>The project must demonstrate that it has accounted for the indirect effects of the project on emissions, otherwise known as 'leakage'. Leakage is when the carbon saving made at a project / location / time increase emissions elsewhere. An assessment must be made of any effects from the project whether upstream or downstream.</i></p> <p><i>An example is a forest preservation project that avoids the emissions caused by clearing one parcel of forest but ends up shifting the production of timber through deforestation to other areas.</i></p>	<p>Adapted from: UK Gov, SEI & GHG Institute</p>
<p>3. Measurable</p>	<p><i>All emission reductions and removals are to be quantifiable using recognised measurement tools against a credible emissions baseline. The project must seek to avoid overestimation of emission reductions through adjustments for uncertainty and leakage.</i></p>	<p>Adapted from: ICROA, SEI & GHG Institute</p>
<p>4. Real</p>	<p><i>All emission reductions and removals and the project activities that generate them are to be proven to have genuinely taken place. Carbon credits must only have been issued from the project after the emissions reduction has taken place.</i></p>	<p>Adapted from: ICROA, SEI & GHG Institute</p>

'High quality' offset principles - 3/3



Principle	Definition	Source
5. Permanence	<i>Carbon credits are to represent permanent emission reductions and removals. Where projects carry a risk of reversibility, at minimum, adequate safeguards are to be in place to ensure that the risk is minimised and that, should any reversal occur, a mechanism is in place that guarantees the reductions or removals are replaced or compensated. The internationally accepted norm for permanence is 100 years.</i>	ICROA
6. Independently verified	<i>The project must receive independent verification. The verifier must be an accredited and recognised independent third party. Purchasers of credits should also ensure that robust, independent validation and verification procedures were in place to check projects were implemented according to the methodology and subsequently monitored to ensure that emission reductions were properly measured.</i>	UK Gov
7. Unique	<i>No more than one carbon credit can be associated with a single emission reduction or removal of one (1) metric ton of carbon dioxide equivalent (CO₂e). A registry must be used to register, track and permanently retire credits to avoid double counting or double selling. Project must not be double counted against another policy or mandatory targets.</i>	ICROA , UK Gov
8. Transparency	<i>Credits should be supported by publicly-available information on a registry to set out the underlying projects (when they were considered approved and implemented), the quantification methodology applied, independent validation and verification procedures, project documentation, proof of credit ownership and date of retirement of credits.</i>	UK Gov

Consultation Questions

'High quality' offset principles



11. Do you agree that carbon offset credits must meet the 'high quality' offset principles in order to account for and offset any carbon emissions?
Strongly agree / agree / disagree / strongly disagree. [Open comment box]
12. Do you agree that utilising existing offset mechanisms, such as the Gold Standard, is the most consistent route currently available to align with these principles and achieve the required outcomes?
Strongly agree / agree / disagree / strongly disagree. [Open comment box]



Carbon Offsetting: *Allowable carbon offsetting approaches*

Allowable carbon offsetting approaches - 1/5

Users are then required to offset their carbon balance using one of the following approaches.

A UK Twinning

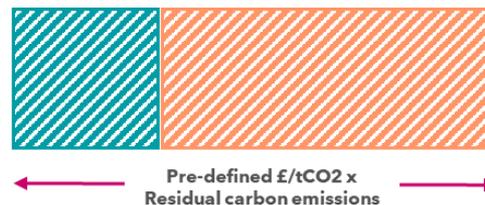


- 1 The residual carbon balance (tCO₂) is offset through the **voluntary market**
- 2 An equivalent amount of **UK Woodland Code*** units are bought

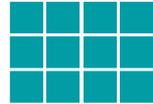
*This will be expanded to Peatland Code once established, and any other UK market changes

 =1tCO₂

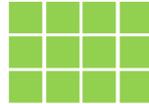
B Transition Fund



- 1 An explicit carbon price is pre-defined by the User (£/tCO₂). This is multiplied by the residual carbon emissions (tCO₂) to calculate their transition fund
- 2 The residual carbon balance is offset through the **voluntary market**
- 3 The **remainder of the transition fund** is spent on net-zero aligned projects of the organisations' choosing



VOLUNTARY OFFSET CREDITS



UK WOODLAND CODE UNITS

Requirements:

Approach	<ul style="list-style-type: none"> • <i>Residual carbon balance is offset through the voluntary market</i> • <i>An equivalent amount of UK Woodland Code units are bought - most likely Pending Issuance Units (PIUs)</i>
Carbon Price	<ul style="list-style-type: none"> • <i>Implicit carbon price based on market</i> • <i>2020's prices (approx.) £9 - £22 +</i>
Reporting	<ul style="list-style-type: none"> • <i>Registry entry for carbon offset credits and WCC units confirming retirement in organisation's name, no. of credits and units retired, type and location of project, and the date and reason for retirement.</i>
Timescale for expenditure	<ul style="list-style-type: none"> • Net zero in Construction: <i>at point of completion</i> • Net zero in Operations: <i>on annual basis</i>

Rationale:

A report commissioned by the European Commission on CDM offset credits stated that an estimated >70% have a low likelihood that emission reductions are additional and are not over-estimated. (16) These findings were also noted to be largely relevant to voluntary crediting mechanisms, such as the Gold Standard and the Verified Carbon Standard.

Due to this, it was felt that users should be 'going further' than purely offsetting their residual balance. Users have the option here to either purchase WCUs and have increased certainty and confidence they are meeting net zero on a building level; or they are able to plan their future pathway to net zero through the purchasing of PIUs. Both routes would support the development of an official UK offsets market, including increased GHG removals.

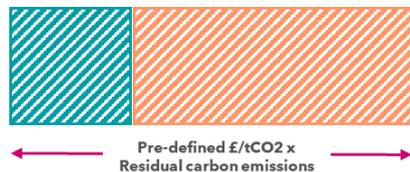
Alignment to UK / Global net zero trajectory:

Net zero requires a transformation in land use across the UK, including extensive tree planting to deliver the emissions sequestration and sustainable timber for the construction and energy sector.

The Committee on Climate Change (CCC) set out a requirement to plant around 30,000 hectares per year to 2050 in order to deliver the UK Net Zero target by 2050. (17)

The average planting rate between 2010-2018 was approximately 9,000 hectares annually. (18) Approximately 13,000 hectares was planted in 2019, but this is still significantly lower than the required planting rate. (19)

B Transition Fund



Requirements:

Approach	<ul style="list-style-type: none"> • An explicit carbon price is placed on the residual emissions • Residual carbon balance is offset through the voluntary market. • The remainder of the transition fund is spent on net-zero aligned projects, but the type of project is left open for each organisation's priorities.
Carbon Price	<ul style="list-style-type: none"> • An explicit carbon price is pre-determined by the user. • At a minimum, it must be equal to the HMT Green Book non-traded central scenario. (20) For 2021, this is £70/tCO₂
Reporting	<ul style="list-style-type: none"> • Carbon price used £/tCO₂ • Registry entry for carbon offset credits confirming retirement in organisation's name, no. of credits retired, type and location of project, and the date and reason for retirement. • Remainder of the transition fund: annual reporting on projects / schemes invested in, how it is net zero aligned, with evidence of projected or measured carbon savings. Reporting should also include how any remaining fund will be spent. Optional to report on wider co-benefits.
Timescale for expenditure	<ul style="list-style-type: none"> • Net zero in Construction: at point of completion • Net zero in Operations: voluntary market offsets, on annual basis. Remainder of transition pot – within three years.

Rationale:

As per rationale for (A) UK Twinning, users should 'go further' than purely offsetting their residual balance. The core premise of this approach is to release funds to further support the transition to net zero with projects that reasonably cannot be called an offset – but are still projects that have significant carbon reduction value.

Users have the flexibility to spend the remaining transition fund on any type of net-zero aligned projects. These projects would not need to meet the 'high quality' offset principles listed on [Slides 49-50](#). Example includes, and is not limited to:

- Reinvesting internally – e.g. energy efficiency measures elsewhere in the organisation
- Local community projects – e.g. retrofits, solar PVs, etc.
- Collaboration with local authorities on projects
- 'Insetting' – investing in the value chain
- Purchasing 'Pending Issuance Units' from WCC
- Development and certification of own forestry via WCC

Alignment to UK / Global net zero trajectory:

Most sectors will need to reduce emissions close to zero without offsetting in order to meet the UK net zero target. (21)

As a result, it is critical to unlock further funds to help minimise the absolute CO₂ emitted on an annual basis, and in turn, minimise the need for offsetting in the first instance. The minimum carbon price linked to the HMT Green Book is to provide a credible, time-dependent valuation of carbon that is aligned to the Paris Agreement*, and is not vulnerable to the issues relating to voluntary market pricing.

*The World Bank concluded that the explicit carbon price consistent with achieving the Paris temperature target is at least US \$40-80/tCO₂ by 2020. (22)

Allowable carbon offsetting approaches - 4/5



Voluntary market - offsets priorities, now and in the future:

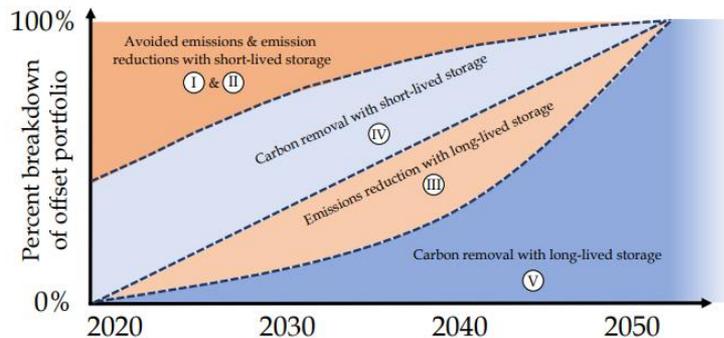
Both (A) UK Twinning and (B) Transition Fund approaches utilise the voluntary market to offset the residual balance. Due to:

1. Current limitations of carbon removal projects to afforestation projects (with associate short-lived / permanence concerns)
2. Desire for organisations' flexibility to align offset credits with broader business social values, e.g. those with co-benefits

The choice / priority of carbon offset projects is currently left open for individual organisations to decide on.

However, as carbon removals and long-lived storage options become more commercially viable over the next decades, users will be expected to increasingly prioritise these projects to account for their residual emissions.

An example net zero aligned transition is as indicated on the right. This approach is compatible with Science Based Targets which recognise that all types of offsets can play a critical role in the transition towards a state of net zero emissions. Similarly, it recognises that carbon removals and long-lived storage should be utilised to offset residual carbon once an organisation has reached a level of abatement that is consistent with 1.5°C pathways. [\(23\)](#)



Example net zero aligned offsets portfolio
Source: [The Oxford Principles for Carbon Offsetting](#)

Allowable carbon offsetting approaches - 5/5



Looking forward - future developments:

It is expected that the voluntary market will evolve considerably over the next decade - both on an international stage and domestically:

Internationally, agreement of Article 6 of the Paris Agreement will see significant changes to global dynamics in the compliance and voluntary offset markets. Existing offset mechanisms are also increasingly not accepting any new large-scale renewable projects, which has traditionally produced significant numbers of offset credits. This means that the supply to demand ratio is likely to be more balanced over the upcoming decade. As a result, voluntary offset credits are expected to increase in price towards the 2030s, although the extent of which and whether it aligns with the US\$50-100 estimated necessary to achieve the goals of the Paris Agreement [\(24\)](#) remains to be seen.

Domestically, there is the commitment within the UK Clean Growth Strategy to set up a domestic carbon offset market that would encourage more businesses to support cost-effective emission reductions. [\(25\)](#) The Peatland Carbon Code is also expected to join the Market Environmental Registry in the future, following a similar line of development to the Woodland Carbon Code. [\(26\)](#)

The Government has also published a consultation on future carbon capture and storage (CCUS) business models in July 2019, as part of their Action Plan to enable the first UK CCUS facility to be commissioned in the mid-2020s. [\(27\)](#)

If and when there are significant market developments, such as those listed above, the guidance will be updated to reflect these changes where applicable and appropriate.

However, these future developments are also not definitive - which serves to highlight that the allowable carbon offsetting approaches outlined in this guidance has been developed based on what is considered best practice today.

Local Planning Requirements

A number of Local Planning Authorities (LPAs), have planning requirements linked to onsite carbon reductions and net zero targets. **Where these are not met, developers are expected to offset the remaining emissions.**

To offset, developers make a cash-in-lieu contribution to a LPA's carbon offset fund, which are secured through section 106 agreements. This is applicable to **regulated energy only**, and is an upfront payment calculated for a 30-year period.

Alignment with this guidance

Each LPA has their own criteria for assessing which project to fund. Energy efficiency projects are typically most popular, but projects with less tangible carbon impacts such as behaviour change projects are also funded.

Of the 30 LPAs reviewed by the Greater London Authority (GLA) in 2019, 23 LPAs reported that no carbon offset payments had been spent since 2016. Of the 7 LPAs who had reported expenditure, only 43% of the total funds collected had been spent since 2016. [\(28\)](#)

LPA carbon funds are more akin to carbon taxes than offsets, because the projects do not currently align with the widely recognised offset principles as set out in [Slides 49-50](#) of being real, measured and verified carbon savings. They are also not spent within a timeframe compatible with net zero claims.

Unless the funded project aligns with the offset principles and required timeframe, buildings seeking net zero in operations cannot use these planning payments as evidence of offsetting their residual carbon balance.

Alignment with the NZCB Framework

There is the concern that this guidance would then require developers to pay once into the LPA's carbon offset fund, and once again if they seek to be net zero in operations, in line with the NZCB Framework. [\(29\)](#) This section is to outline the circumstances to which this concern relates to.

1. The guidance in this context is only relevant to owner-occupiers who (a) are intending on developing a new build for self-occupation and (b) seek net zero in operations as per the NZCB Framework
2. This guidance specifies that new builds should not be built with fossil-fuel combustion. As a result, the building's in-use energy consumption should be 100% balanced by the renewable electricity procurement strategy. **There should be no residual emissions to offset.**
3. In the specific situation whereby a new build must connect to an existing heat network with fossil fuel combustion, there will be residual carbon emissions to be offset. This can be balanced via exported renewable generation, if there is on-site PVs; otherwise the balance must be offset via the voluntary market.

Consultation Questions

Allowable carbon offset approaches



13. Do you agree that due to concerns relating to additionality and the over-estimation of carbon savings, residual carbon emissions should be offset at a ratio greater than 1:1?
Strongly agree / agree / disagree / strongly disagree. [Open comment box]
14. Do you agree that the guidance should facilitate the option for Users to support UK / domestic projects?
Strongly agree / agree / disagree / strongly disagree. [Open comment box]
15. Do you agree that Users should have the option of choosing one of the two proposed carbon offsetting approaches to take? Or should the guidance explicitly recommend one approach?
It should provide the two options / it should provide only one - UK Twinning / it should provide only one - Transition Fund / Other
[Open comment box]
16. (A) Do you agree that a minimum pre-defined carbon price should be set for the Transition Fund approach?
Yes / No - there shouldn't be a minimum pre-defined carbon price / No - but the guidance should recommend a best-practice price / Other [Open comment box]

(B) If you agree that there should be a minimum or recommended pre-defined carbon price for the Transition Fund approach, what are your thoughts on this being based on the HM Treasury Green Book Non-traded central scenario?
Too high / It is an appropriate price / Too low / Support an alternative price (please list price and source in comments) / We should not be setting or recommending any price / Other [Open comment box]
17. Do you agree that the choice / priority of the carbon offset projects should be left open to the individual organisations to decide on? With the caveat that once carbon removals and long-lived storage options become more commercially viable, these projects are to be prioritised.
Strongly agree / agree / disagree / strongly disagree. [Open comment box]
18. Any further comments on the '**Carbon Offsetting**' section.
[Open comment box]



Carbon accounting

Carbon accounting - 1/4



Carbon emissions within the context of the Net Zero Carbon Buildings Framework can only be accounted for using the following routes:

	FOSSIL FUEL	ELECTRICITY	EMBODIED CARBON	NOTES
GREEN GAS TARIFFS	✓	X	X	Green gas tariff must be 100% carbon neutral
ONSITE RENEWABLES ON/OFFSITE PPAs HIGH QUALITY GREEN ELEC TARIFFS	X	✓	X	
EXPORTED RENEWABLE ELECTRICITY GENERATED		-	X	All electricity procurement must be 100% REGO backed, whether on a building, portfolio or in multi-development scale
LOW QUALITY GREEN ELEC TARIFFS & UNBUNDLED REGOs	X	✓	X	Users should transition to higher quality procurement routes at next opportunity
CARBON OFFSETS (Voluntary Market)	✓	X	✓	

If converted to kCO₂e savings

Table 2 Carbon Accounting

Carbon Accounting - 2/4



Guidance requirements:

Exported electricity generation - via on-site or on/off-site PPAs

Exported renewable electricity generation can be used to account for gas consumption if converted to kgCO₂ savings

It is recognised that it's not practically feasible to require the exported generation to meet the carbon offset principles ([Slides 49-50](#)). However, to ensure that the zero emissions energy attribute is not accounted for when exported to the grid (and subsequently the grid emission factors), generators expected to export more than a cumulative 0.5-1MWh over the financial year* should apply for the REGO scheme and retire the associated certificates:

- Meter readings must be uploaded, either on a monthly basis or in a single submission at year end to the Renewables & CHP Register
- REGOs issued are available for immediate retirement on the registry

Carbon accounting - reporting

Dual reporting as per GHG Protocol Scope 2 guidance

The residual carbon balance should be calculated using the market-based emission factors

**Smaller generators who will export less than a cumulative 0.5-1MWh/annum will be allowed to account for gas consumption (kgCO₂ savings). This will involve a degree of double counting, but the incentives to appropriately size and install renewable generators are considered to be more important.*

Carbon Accounting - 3/4



Implications of [Slide 61 Table 2: Carbon Accounting](#):

Implication	Rationale
Upfront embodied carbon can no longer be accounted for through the export of renewable electricity	<ul style="list-style-type: none">• This is to address concerns relating to (1) how a building at the point of completion can be held accountable for making a claim that all upfront embodied carbon is net zero if it relies on many years of future over-supply of renewable electricity and (2) the timeframe of when embodied carbon is emitted• It is also to limit double counting of the carbon savings, e.g. if the building claims against embodied carbon but still sells the excess to the national grid as zero emissions energy
It is not applicable for exported renewable electricity to account for electricity consumption elsewhere in a portfolio or multi-building development	<ul style="list-style-type: none">• All electricity procurement for a building, portfolio or multi-building development must only consist of routes in Table 1 (Slide 27), i.e. 100% REGO backed• This means that total carbon emission relating to electricity consumption is already zero, therefore there is no related residual emissions to account for with the exported energy
Exported renewable electricity can account for gas consumption if converted to kgCO ₂ savings	<ul style="list-style-type: none">• Exported renewable electricity cannot account for gas consumption on a kWh basis as the carbon impacts of 1kWh gas is not equal to that of 1kWh electricity - it can, however, on a kgCO₂ savings basis• This is to help encourage maximise PV installations and sizing where viable• As it is not feasible for these kgCO₂ savings to meet the offset principles (Slides 49-50), it is expected that associated REGOs for the exported generation are claimed and retired• This is to prevent double counting on the same MWh of generation, e.g. if the building claims against gas consumption, but still sells the excess to the national grid as zero emissions energy
Carbon offsets cannot be used to account for electricity consumption	<ul style="list-style-type: none">• There are readily available market mechanisms to ensure that your electricity procurement is zero emissions

GHG Protocol Scope 2 Guidance

“ Companies with any operations in markets providing product or supplier-specific data in the form of contractual instruments shall report scope 2 emissions in two ways and label each result according to the method: one based on the location-based method, and one based on the market-based method. ”

The GHG Protocol Scope 2 guidance specifically outline that any organisation operating within a market with procurement choice, such as the UK, should be reporting their emissions using both the location- and market-based method.

The market-based method reflects the GHG emissions associated with the choices a consumer makes regarding its electricity supplier or products - under this approach, organisations should use the GHG emission factor associated with the qualifying contractual instruments. This can include energy attribute certificates, such as REGOs, but also direct contracts or supplier emission rates that reflect renewable or fossil fuel generation - i.e. those with green products can report zero emissions, but similarly those with specific fossil fuel products would report greater emissions than grid average.

To prevent double counting of GHG emission rate claims tracked through contractual instruments, the market-based method requires an emission factor for the residual mix - i.e. the energy mix once all claimed generation are removed from the overall national average.

This residual emission factor is what UK consumers should use if they have chosen not to purchase renewable electricity via PPAs, Green Tariffs or REGOs, and do not have supplier-specific information.

How does this relate to the UK?

The UK Environmental Reporting Guidelines do not align with the GHG Protocol, in that it only requires location-based reporting. As a result, it is likely that only organisations that have green products would report against market-based factors.

The residual fuel mix is published by BEIS on an annual basis [\(30\)](#) - this is issued to all suppliers to use for any of their supply without certificates. For 2019/20, the residual fuel mix consisted of 8% renewable energy, compared to the UK fuel mix (i.e. location-based) of 38%. [\(31\)](#)

Unfortunately, BEIS does not currently publish the associated emission factor for the residual fuel mix - organisations would need to obtain this elsewhere, such as via the Association of Issuing Bodies (AIB).

UK's 2019/20 residual fuel mix factor was of 0.348 kgCO₂e/kWh [\(32\)](#) - this is compared to the location-based grid average factor of 0.233 kgCO₂e/kWh [\(33\)](#).

Calculating the residual carbon balance

As per the GHG Protocol Scope 2 accounting, organisations shall use the gross electricity purchases from the grid, rather than grid purchases 'net' of generation.

This means an organisation's total electricity consumption would include self-generated energy (with any emissions reflected in Scope 1) and total electricity purchased from the grid. It would exclude generation sold back to the grid.

However, organisations would be expected under this guideline to report avoided emission estimates from exported generation separately to the gross Scope emissions – the net balance can then be calculated, which would be residual carbon balance to be offset. This is in line with the UK Environmental Reporting Guidelines reporting structure, albeit for both market-based and location-based factors.

Example - in operation

The following example is for an office in operation, with natural gas via heat network, green electricity tariff and onsite PV.

	Market-based (tCO ₂)	Location-based (tCO ₂)
Gross Scope 1 & 2	22	69
Exported renewable electricity	(3.5)	(2.3)
Residual carbon	18.6	66.4

Using the market-based method, the office can claim zero emissions in relation to its green electricity tariff. Similarly, the avoided emissions from exporting generation is greater due to the differences in carbon factors used.

The residual carbon balance to be offset in line with this guidance would be the market-based calculation, i.e. 18.6 tCO₂.

Note that this is a simplified reporting example; an updated version of the operational energy reporting template in Appendix B of the NZCB Framework will be provided in the final guidance.

Carbon Accounting - 4/4



Drivers behind carbon accounting

The GHG Protocol Scope 2 guidelines clearly state that organisations with operations in the UK should report Scope 2 emissions in two ways: location-based and market-based. This is in line with the overarching NZCB Framework principle of **'improve measurement and transparency'** which promotes public disclosure over the approach taken by a building to achieve net zero carbon.

The difficulty with utilising market-based reporting within the UK lies with the use of REGOs. In theory, if demand for renewable energy, which on a shared grid can only be expressed using these certificates, approaches supply, the incentives to build additional renewable capacity should grow - with REGOs signalling that demand.

Today's prices of REGOs indicate that UK is not quite at that stage yet. Traditionally, demand for REGOs predominately consisted of domestic retirement - however, there is a steady demand for renewable-sourced electricity amongst commercial consumers, particularly as more corporates pledge to achieve net zero emissions and look to more accurately report on their carbon accounting.

UK market analysis indicates that REGO issues, retirements and exports of certificates have increased significantly over the past 4-5 years, with the number of REGO retirements in 2018-19 55% higher than 2016

-17 [\(34\)](#) - this demand, and subsequently prices, is expected to maintain an upward trajectory as the UK progresses towards its net zero target. This should therefore, in time, stimulate additional renewable generation capacity.

Alignment to UK / Global net zero trajectory:

Current UK Environmental Reporting Guidelines only requires location-based GHG reporting. Dual reporting by all organisations, regardless of whether they have purchased any green products, will help provide a more accurate reflection of the overall carbon impacts and minimise the inherent double counting issues.

Using market-based emission factors will also provide greater transparency of the electricity procurement and offsets market. This will help increase consumer pressure for more rapid market changes, and encourage collaboration across the value chain, e.g. between landlords/tenants or through the supply chain, to minimise the residual balance to offset.

Looking forward - future developments

Time-of-use emission factors will see a significant overhaul of current market mechanisms and best practice carbon accounting as per the existing GHG Protocol Scope 2 guidelines. If and when these changes occur, the guidance will be updated to reflect these developments.

Consultation Questions

Carbon Accounting



19. Do you agree that dual reporting as recommended by the GHG Protocol Scope 2 guidance should be required?
Strongly agree / agree / disagree / strongly disagree. [[Open comment box](#)]
20. Do you agree that the residual carbon balance to be offset should be calculated using the market-based emission factors?
Strongly agree / agree / disagree / strongly disagree. [[Open comment box](#)]
21. Do you agree that exported renewable electricity generated should no longer be allowed to account for and offset upfront embodied carbon for net zero in construction?
Strongly agree / agree / disagree / strongly disagree. [[Open comment box](#)]
22. Do you agree that exported renewable electricity can account for gas consumption, if converted to kgCO₂ savings?
Strongly agree / agree / disagree / strongly disagree. [[Open comment box](#)]
23. Do you agree that all renewable generators expected to export more than a cumulative 0.5-1.0MWh over the financial year should be required to claim and retire the associated REGOs if using the export is to be used as a carbon offset?
Strongly agree / agree / disagree / strongly disagree. [[Open comment box](#)]
24. Any further comments on the '**Carbon Accounting**' section
[[Open comment box](#)]

Thank you!

The industry consultation is open until **Tuesday 17th November 2020**

You can provide your feedback using the online [Survey here](#).

UKGBC are also hosting two consultation workshops for those who would like to discuss the guidance in further detail. Details on how to sign up are available below:

- [Workshop 1 - 5th November 2020](#)
- [Workshop 2 - 12th November 2020](#)

