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POLICY BRIEF:

PRICING 'NEGATIVE EMISSIONS' - UK LANDSCAPE AND NEXT STEPS

Our policy briefs offer insight and analysis to help inform ongoing policy development as relates to carbon pricing. This brief was written by Hannah Dillon, Head of the Zero Carbon Campaign.

Introduction

Almost all emissions¹ scenarios consistent with the Paris Agreement allow a role for 'negative emissions,' and rely to varying extents on our ability to scale the removal of carbon-dioxide (and equivalent Greenhouse Gases) from the atmosphere.²

In spite of this - and of the growing number of countries announcing 'net zero' commitments³ - there has been a relative paucity of R&D and regulatory support for emerging negative emissions technologies (NETs),⁴ and the large-scale deployment of domestic carbon offset markets is yet to be realised.

For many, carbon removals - or 'offsets' - have become a pariah; a highly unregulated excuse for big polluters to avoid reducing the volume of emissions that they produce. Instead - via schemes such as CORSIA⁵ - they act as a mitigation deterrent, enabling companies to 'offset' their environmental impacts by purchasing negative emissions credits from elsewhere.

As such, some view carbon offsetting as a means of delaying ambitious climate action; creating an appearance of progress whilst serving as (at best) a tool for Governments and businesses to displace their emissions.⁶

A lack of regulation, an inability to prove that offset credits have longevity - i.e that trees which have been planted as offsets will not be cut down before their sequestration potential has been realised - and the continued exposure of the flawed nature of offsetting schemes⁷ has further exacerbated this viewpoint.

However, if we want to remove as much carbon-dioxide from the atmosphere as we pump into it, then we need to scale investment in Greenhouse Gas Removals (GGRs) - whether by natural (i.e nature-based sinks) or technological (i.e BECCS and DACCS) means.⁸ The introduction of a domestic carbon offset market provides one such means of doing so.

UK Context

Carbon offset markets do exist in the UK, and are highly regulated and well-respected.⁹ The issue is that they are voluntary, small in volume, and credits are hard to come by. The introduction of the UK's 2050 net zero target - and 68% emissions reduction target by 2030¹⁰ - not only necessitates better funding for climate mitigation and adaptation, but also the implementation of stronger incentives for scaling GGRs. According to the think tank Green Alliance, a domestic carbon offsetting market could provide £87 million of annual funding for nature projects in the UK.¹¹

If offsetting is to become a meaningful part of the UK's net zero strategy,¹² it is clear that a more formal and regulated market in negative emissions will be required, as well as some stringent reputational management.¹³ There is certainly precedent for such a market in the UK. For example, HMG introduced the Woodland Carbon Guarantee (WCaG)¹⁴ in November 2019, a £50M scheme which guaranteed a certain level of Woodland Carbon Unit purchase from the Government up to 2055/2056.¹⁵

A market of this nature would work alongside a more stringent system of UK carbon pricing - as advocated by the Zero Carbon Campaign¹⁶ - to facilitate the UK's transition towards net zero. Stronger carbon pricing would drive engagement with such a scheme, by incentivising investment in carbon removals, with the possibility of enabling 'emissions removed' to be deducted from an operator's 'total emissions' before a carbon tax or price was paid.

Establishing a negative emissions market

Whether set up as a standalone market - or integrated into existing trading schemes as advocated by the Climate Change Committee¹⁷ - the UK Government needs to make good on its 2017 Clean Growth Strategy commitment to '*set up a stronger and more attractive domestic carbon offset market that will encourage more businesses to support cost-effective emissions reductions.*'¹⁸

Appetite for such a scheme has been demonstrated in a letter (October 2020) to the Chancellor from the organisations behind the Coalition for Negative Emissions,¹⁹ in the Government's consultation on Greenhouse Gas Removals,²⁰ and through the private sector Taskforce on Scaling Voluntary Carbon Markets (TSVCM)²¹ established by Mark Carney, former Governor of the Bank of England. An illustrative example of how such a scheme might work is provided in **Annex A**.

Core considerations

Whilst there is strong appetite for investment in carbon removals - both as a means of offsetting private sector environmental impacts and of injecting private capital into land restoration and engineered carbon removals - some core considerations will have to be addressed before such a scheme can be established, including:

Double-counting.

Ensuring that the same tonne of carbon removed / sequestered cannot be sold on two different markets, and that credits are retired once sold so they cannot be used more than once.²²

Consideration must also be given to whether 'carbon removal' credits can be used to offset emissions totals before carbon price payments are made; we must ensure that a tonne of carbon removed is not used to offset annual emissions volumes by two different operators (i.e the operator that actually removed a tonne of CO₂, and one who purchased a credit corresponding to that tonne).

Integration with other payment schemes.

For example, how payment for 'negative emissions' might sit alongside payment for provision of other 'public goods' under the Environmental Land Management Scheme (ELMs).

The view of the Zero Carbon Commission is that negative emissions payments will be required alongside ELMs payments to incentivise the scale of land-use change required to achieve net zero. Payment across different metrics can also mitigate the negative impacts of managing land for one sole purpose, which can have an adverse impact on other beneficial services. For example, monoculture tree planting is a relatively cheap means of sequestering carbon-dioxide, but can have negative biodiversity impacts.²³ Provision of a broader range of payment incentives can help to avoid such practices.

Inconsistencies in attribution, including pricing.

Inconsistencies in attribution in terms of value added, process of certification and monitoring will need to be addressed, as will issues of pricing; although each credit would correspond to a tonne of carbon saved / removed, it doesn't necessarily follow that each tonne is worth the same amount of money, or has cost the same amount to produce.²⁴

The inconsistency in regards to how carbon removals are priced (see Fig 3) - which is also true of how carbon emissions are priced across different sectors of the economy - will have to be addressed to ensure a spread of investment across carbon removal types, and to avoid a clamour to purchase the cheapest offsets (see Fig 4).

Reduction in national carbon budgets.

If we are going to develop a formal market in negative emissions credits, we may have to consider reducing national carbon budgets to ensure that carbon offsetting is not used as a guise to cancel out (rather than drive further reductions in) emissions producing behaviours. An alternative - which has received some support - is to develop separate targets for negative emissions and emissions abatement.²⁵

Standards and regulation.

To support the introduction of a negative emissions market in the UK, a set of standards and principles must be developed that can:

- 1. Give confidence in the legitimacy and environmental integrity of carbon offsetting regimes** (i.e through third-party assessment and verification);
- 2. Impose restrictions that ensure offsetting is only used as part of - rather than as an alternative to - any particular business or sectors' decarbonisation strategy** (i.e by limiting the percentage of emissions reductions that can be achieved through offsetting rather than a reduction in the volume of emissions produced). This focus on 'insetting' - offsetting within each sector, as opposed to across sectors - will be key to ensuring deep decarbonisation across the UK economy (rather than a 'net' reduction via offsetting - relying solely on credits purchased from other sectors with high offsetting potential such as land use);
- 3. Can be integrated into existing carbon payment schemes, such that high-emitters** - i.e those for whom 'net' zero is the only feasible possibility can deduct 'emissions removed' from total volumes before paying a carbon price, or use offset certifications to secure a rebate on the carbon price paid.

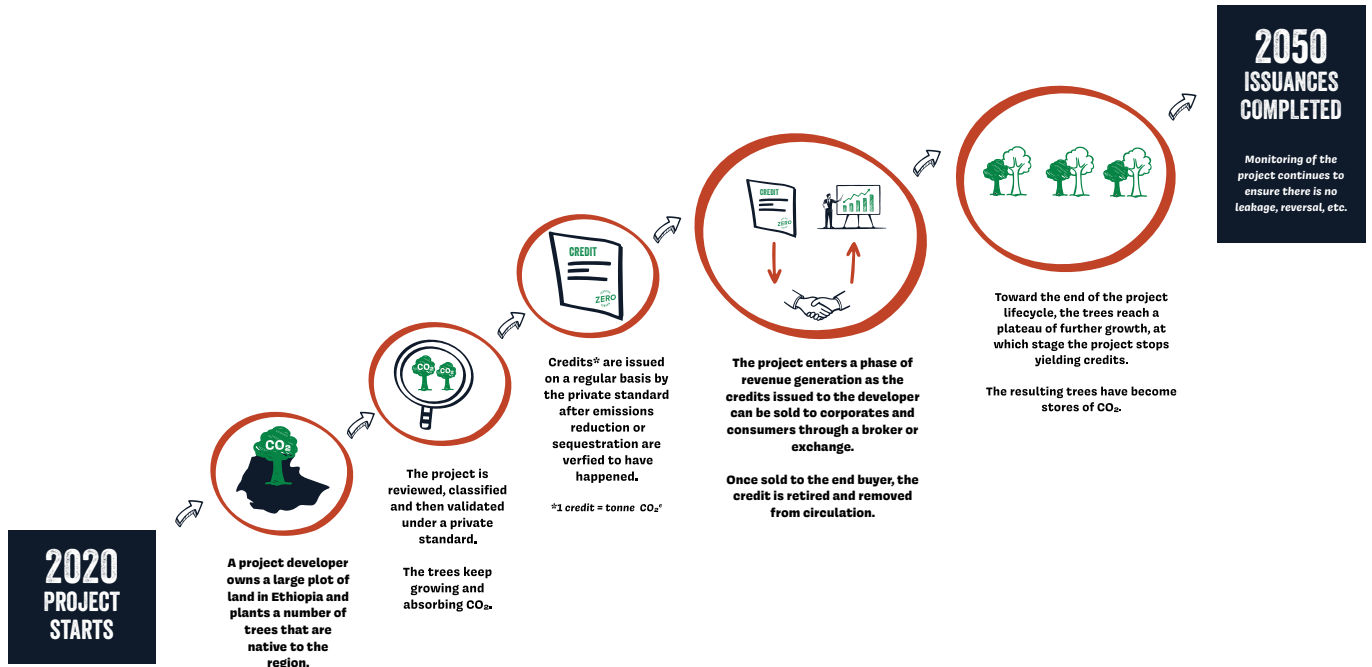
As proposed by Green Alliance,²⁶ a national offsetting regulator - or 'office for carbon removal' - could be set up to oversee such a scheme.

Conclusion

It is clear that greater investment in GGRs will be required to deliver on the UK's legally binding 2050 net zero target. Establishing a domestic offset market can not only provide an incentive for those who have the means to scale investment in GGRs to do so, but can also provide much-needed funding for climate mitigation and adaptation - including natural carbon sequestration through land management. Establishing a domestic market - overseen by an independent regulatory body and accompanied by robust certification schemes - can help drive confidence in the UK's 'net zero' target, by providing assurance about the legitimacy of carbon offsets, and by ensuring offsetting is only utilised where further reductions in emissions are not possible. This is by no means the only mechanism that will be required to scale investment in GGRs, but it is a necessary - and likely popular - first step.

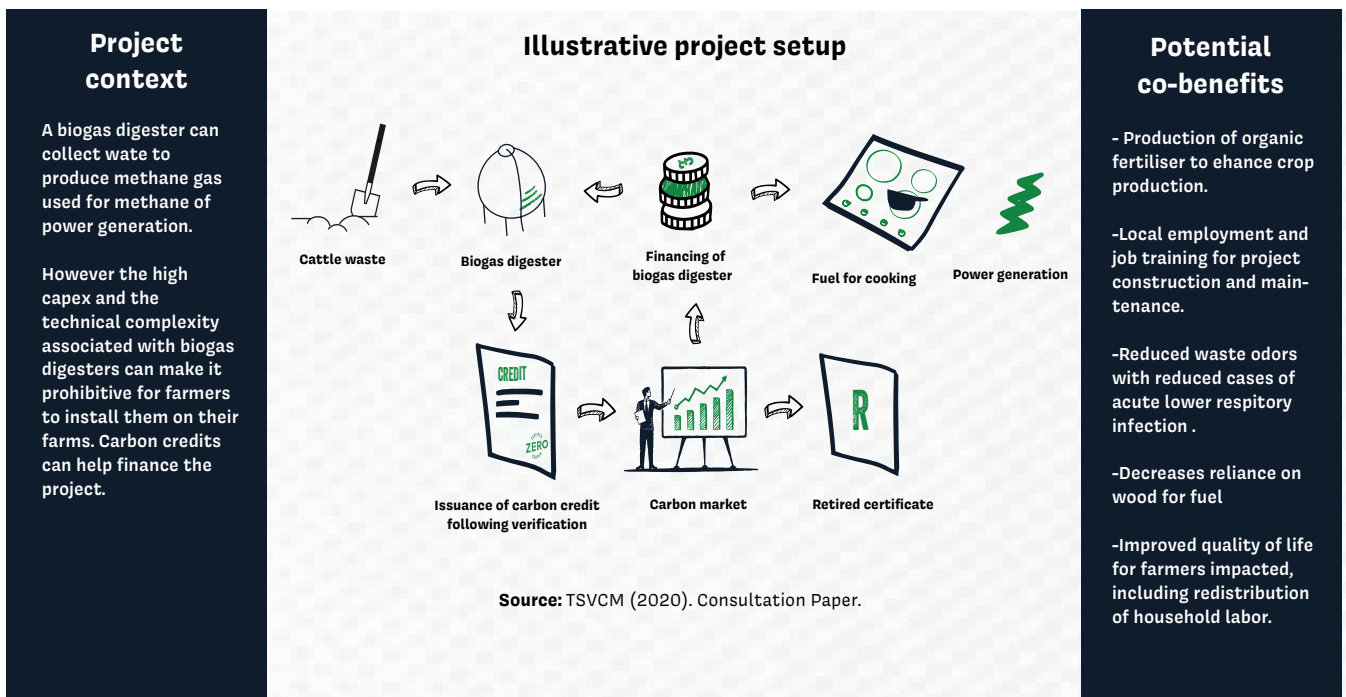
Annex A.

FIG 1: Life Cycle of a carbon credit²⁷



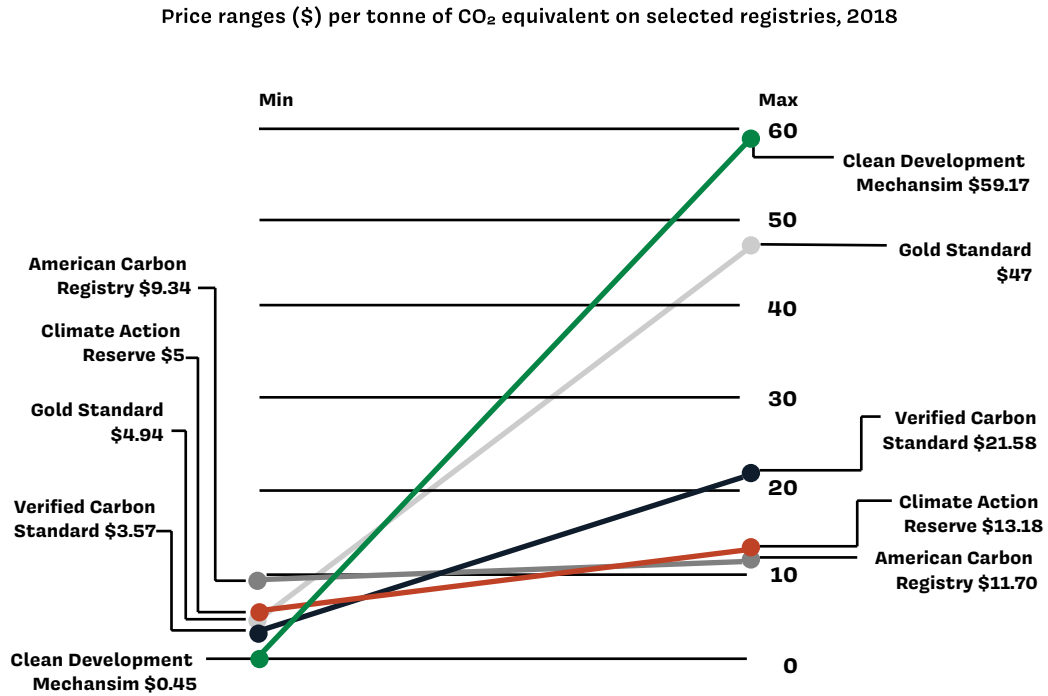
Source: TSVCM (2020). Consultation Paper.

FIG 2: Example of eligible offset project²⁸



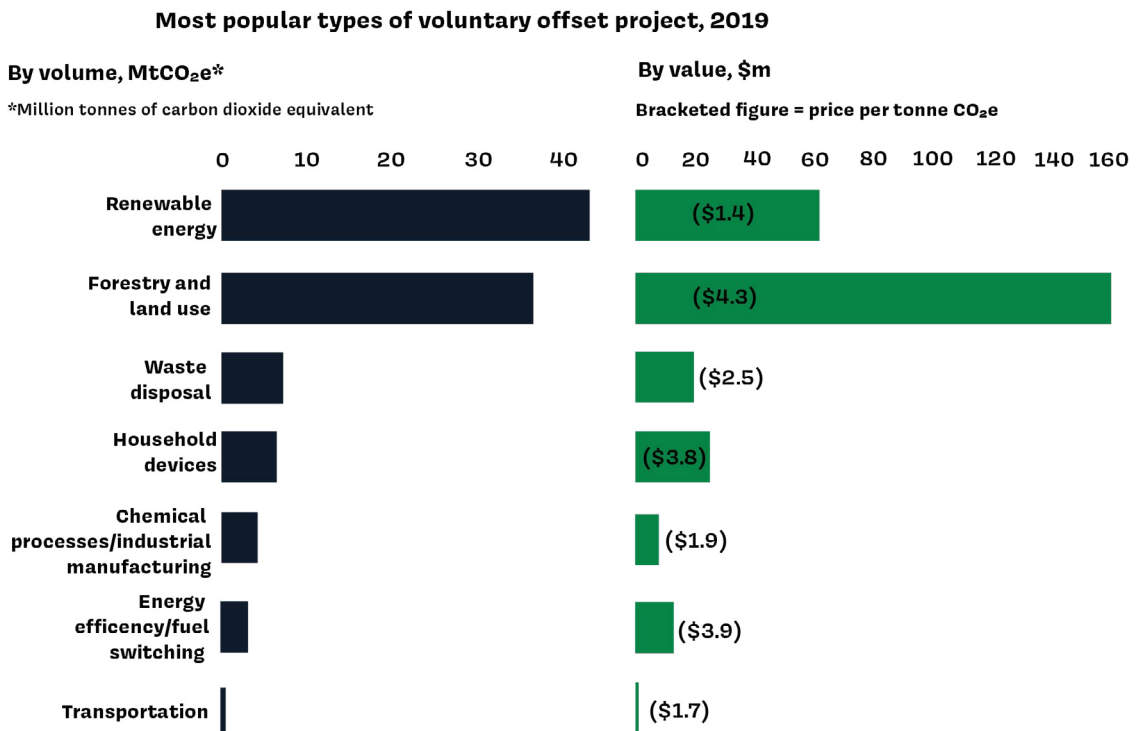
Source: TSVCM (2020). Consultation Paper.

FIG 3: Variation in voluntary 'carbon offset' prices²⁹



Source: Allied Crowds (2020). Financial Times.

FIG 4: Relative popularity of voluntary offset types³⁰



Source: Ecosystem Marketplace (2020). Financial Times.

Endnotes

¹ Greenhouse gas (GHG) emissions that are removed from the atmosphere, either through natural or technological means.

² IPCC, [2014](#), [2018](#)

³ Murray (2020). Which countries have legally-binding net zero emissions targets? Available [here](#).

⁴ Burke (2020). Negative emissions under a net zero target: navigating the controversies and pitfalls. Available [here](#).

⁵ ICAO (2020). What is CORSIA and how does it work? Available [here](#).

⁶ Azam, G, et al (2020). Is scaling up voluntary carbon offset markets really what the climate needs? Green Finance Observatory. Available [here](#).

⁷ Telegraph (2020). Carbon offsetting may be a gold mine in the West – but in Madagascar, sapphires are the real prize. Available [here](#).

⁸ Several technologies have been identified as being capable of delivering GGRs at scale: afforestation/reforestation (AR/RE), bioenergy with carbon capture and storage (BECCS), biochar, direct air carbon capture and storage (DACCS), and enhanced weathering of minerals (EW). From: Minx et al., (2018). Available [here](#).

⁹ Such as [Woodland Carbon Code](#) - the UK's voluntary carbon standard for woodland creation, which provides credits based on a series of representative averages for UK Woodland (e.g av. carbon storage over time by woodland type) and works to provide reassurance about carbon savings that will realistically be achieved. This system is accompanied by a robust certification scheme that enables voluntary purchase of bio-carbon credits.

¹⁰ Updated emissions reduction target, as stated in the UK's 'Nationally Determined Contribution' under the Paris agreement.

¹¹ Green Alliance (2020). The Flight Path to Net Zero. Available [here](#).

¹² The CCC's 6th Carbon Budget 'Balanced Net Zero Pathway' estimates that achieving net zero by 2050 will require engineered emissions removals of 58 MtCO₂/year in 2050, in addition to nature-based sinks of 39 MtCO₂/year from UK land. Available [here](#).

¹³ Some have likened the international voluntary offset market to the sale of Papal Indulgences during the middle ages, with companies paying hefty sums to absolve themselves of their environmental guilt without fundamentally changing their behavior. Financial Times (2020). Available [here](#).

¹⁴ Forestry Commission (2019). The Woodland Carbon Guarantee has now launched. Available [here](#).

¹⁵ The aim of this scheme was to reduce the risk in long-term investment in woodland (which has a relatively low price on the open market). Under this scheme, those registered with the Woodland Carbon Code can enter into contracts with Government that apply a set price to Woodland Carbon Units (which are generally higher than the market price) which can then be sold to Government in auctions every 5 or 10 years up to 2055/2056.

¹⁶ Zero Carbon Commission (2020). How Carbon Pricing Can Help Britain Achieve Net Zero by 2050. Available [here](#).

¹⁷ Climate Change Committee (2019). Annex: Future of UK Carbon Pricing. Available [here](#).

¹⁸ UK Government (2017). Clean Growth Strategy. Available [here](#).

¹⁹ Business Green (2019). New Business coalition leads calls for chancellor to deliver negative emissions market. Available [here](#).

²⁰ UK Government (2020). Consultation on Greenhouse Gas Removals. Available [here](#).

²¹ Taskforce on Scaling Voluntary Carbon Markets (2020). Consultation. Available [here](#).

²² John Sauven, Chief Executive of Greenpeace UK, recently observed this flaw in relation to the TSVCM, commenting that: “low offset standards can encourage a flood of low-quality credits from old projects.” Mark Carney's carbon market plan puts polluters above the planet. Business Green. Available [here](#).

²³ Heilmayr et al. (2020). Impacts of Chilean forest subsidies on forest cover, carbon and biodiversity. Available [here](#).

²⁴ For example - as outlined in the CCC's 6th Carbon Budget - using domestic biomass in retrofitted BECCS power plants might cost £70/tCO₂ in the mid-2030s, compared to £150/tCO₂ for imported biomass in a newbuild BECCS power plant, £110/tCO₂ for BECCS hydrogen production using imports, or £100-275/tCO₂ for BECCS industrial heat using domestic biomass. Available [here](#).

²⁵ McClaren et al. (2019). Beyond “Net-Zero”: A Case for Separate Targets for Emissions Reduction and Negative Emissions. Available [here](#).

²⁶ Green Alliance (2020). The Flight Path to Net Zero. Available [here](#).

²⁷ TSVCM (2020). Consultation Paper. P.24. Available [here](#).

²⁸ TSVCM (2020). Consultation Paper. P.25. Available [here](#).

²⁹ Financial Times (2020). Global carbon offset market progresses during Coronavirus. Available [here](#).

³⁰ Financial Times (2020). Global carbon offset market progresses during Coronavirus. Available [here](#).