

THE CMA'S DRAFT GUIDANCE ON ENVIRONMENTAL SUSTAINABILITY AGREEMENTS

A submission by Frontier Economics

11 APRIL 2023



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This response sets out our views on the Draft guidance on the application of the Chapter I prohibition of the Competition Act 1998 to environmental sustainability agreements (“Draft Guidance”) published by the Competition and Markets Authority (“CMA”) on 28 February 2023. Frontier Economics is an economic consultancy which regularly advises clients both on antitrust issues relating to European and national competition law and on economic problems relating to sustainability.

Introduction and key recommendations

Frontier Economics welcomes the CMA’s efforts to provide clarity and guidance to businesses on how competition rules should apply to agreements which aim to increase sustainability. The CMA’s Draft Guidance has much to recommend it, in particular in relation to the proposed approach for assessing agreements that aim to tackle climate change. In particular:

- the CMA rightly identifies that the actions of businesses and consumers can often create wider “out-of-market” costs for the environment and that in some circumstances businesses may need to cooperate to ensure that these wider costs are addressed;
- the Draft Guidance provides a sensible framework that will allow the CMA to balance these out-of-market externalities against within-market consumer welfare detriment when appraising agreements designed to help address climate change; and
- recognising that agreements will need to be assessed on a case-by-case basis, it sets out a sensible open-door policy to allow businesses to come forward and sound out ideas with the CMA.

We have two key recommendations to improve the Draft Guidance further:

- **First, the approach proposed for climate change agreements should apply to other types of environmental sustainability agreement.** While the CMA will take account of out-of-market costs and benefits for climate change agreements, it does not propose to do so for other types of environmental sustainability agreement, such as agreements that will help reduce biodiversity loss or mitigate the damage to human and ecosystem health caused by pollution. There is no justification for this from an economic perspective. On the contrary:
 - many of these other environmental concerns are being driven by the same economic dynamics that are driving climate change, with the actions of individual businesses and consumers creating wider costs that are not borne by these businesses or consumers themselves, leading to resources being misallocated from a societal perspective;
 - while we agree with the CMA’s observation that climate change represents a risk of significant proportions to society, we do not agree that other types of environmental threat should be treated with less urgency;

- while the CMA rightly notes that the UK has signed up to binding targets to address climate change, it has also signed up to binding targets to address a number of these other types of environmental harm; and
 - by restricting the benefits that may count for the assessment for many types of sustainability agreements to those that are realised within the market, the CMA will be unnecessarily complicating the assessment by introducing additional steps to isolate the benefits that an agreement bring to a specific subset of customers (while systematically stripping out the benefits to others) – in other words this will in most cases create more work for the CMA, not less.
- Second, **the CMA should provide more practical guidance on how it will assess the benefits of a proposed agreement where some quantification is needed.** While there is an existing body of case law on how to quantify the detrimental costs that agreements between businesses can create for consumers, the Draft Guidance provides little guidance on how the CMA will weigh up these costs against any benefits that an environmental agreement could create. We would encourage the CMA to provide more guidance on some of the techniques that businesses could use to quantify these benefits, both in the Guidance itself and through reports on its decisional practice. While the costs and benefits of a proposed agreement will need to be assessed on a case-by-case basis, there are a number of established methodologies that are widely used in government and elsewhere to quantify the benefits of environmental sustainability measures. Further guidance and examples of how businesses might use these methodologies in their submissions to the CMA would be especially valuable for smaller businesses with limited resources and little experience in applying these techniques. We have provided some case studies on these established practices and techniques for climate change agreements and biodiversity agreements below.

The framework for assessing climate change agreements should apply to all environmental sustainability agreements

Economic theory suggests that the most efficient way to correct a negative externality is to force the market to internalise the cost of the externality in question. If factories must pay a price for waste they emit into rivers or the air that reflects the cost to society of that waste, then they will only pollute up until the point where the economic benefits of the polluting activity outweighs its wider societal costs. Beyond that point, they will either reduce production or invest in technologies that reduce the pollution generated by their production processes.

Genuine sustainability agreements propose to implement measures that are necessary to correct the environmental or social harms caused by production. These measures may impose a cost (monetary or otherwise) on consumers. However, this cost should not be viewed as a harm inflicted upon the consumer by a third party – rather, it allows the price the consumer faces to reflect the “true cost” of the product in question once externalities are factored in. If a consumer is willing to pay the true cost, then this suggests that the value to them of their consumption is at least as great as the true societal cost of the product. If the consumer is not willing to pay, then they will reduce the amount they purchase, which in turn may lead to more sustainable levels of consumption.

The CMA recognises this rationale for correcting market dynamics in its Draft Guidance.¹ However, it departs from this framework in its proposed approach to assessing some types of environmental sustainability agreement. In particular, the CMA draws a distinction between environmental sustainability agreements defined in a broad sense and agreements that specifically aim to tackle climate change. According to the Draft Guidance:

- **Environmental sustainability agreements** *“capture agreements or concerted practices between competitors and potential competitors which are aimed at preventing, reducing or mitigating the adverse impact that economic activities have on environmental sustainability or assessing the impact of their activities on environmental sustainability”.*² The CMA further notes that *“economic activity may, directly or indirectly, cause negative environmental externalities, including through pollution, reducing biodiversity, or contributing to climate change from greenhouse gas emissions”.*³ Examples include

¹ See for example, footnote 9 of the Draft Guidance, where the CMA notes that *“Negative externalities occur when production or consumption causes harm to unrelated third parties who are not (sufficiently) compensated for that harm. For instance, the use of vehicles causes harm to society in the form of negative health effects (e.g. from air and noise pollution). Although users of the vehicles enjoy the benefits, other members of society are not compensated for the harm that they suffer. Were users of vehicles to fully compensate for the harm they cause, this would lead to them incurring higher costs or reducing their usage.”*

² Draft guidance on the application of the Chapter I prohibition in the Competition Act 1998 to environmental sustainability agreements, dated 28 February 2023, paragraph 2.1.

³ Ibid.

agreements aimed at improving air or water quality, conserving biodiversity or promoting sustainable use of raw materials.

- **Climate change agreements** cover “*agreements which contribute towards the UK’s binding climate change targets under domestic or international law. Such agreements will typically reduce the negative externalities from greenhouse gases, such as carbon dioxide and methane, emitted from the production and consumption of goods and services*”.⁴ The CMA emphasises that these negative effects (and, in turn, the associated benefits of reducing them) “*typically are global in nature and are realised over long time periods*”.⁵ Examples might include agreements between manufacturers to phase out a production process that involves emission of carbon dioxide, to switch to using electric vehicles, or not to support (via financing or other means) fossil fuel producers.

For the reasons we explain below, the CMA's proposed approach to assessing climate change agreements is appropriate because it will enable the CMA to balance out-of-market externalities against the welfare of consumers in the markets that will be directly affected by these agreements. However, the CMA's proposal to take a different approach for other types of environmental sustainability agreement lacks justification.

The proposed approach to assessing climate change agreements appropriately balances out-of-market externalities against consumer welfare detriment

The approach outlined in the Draft Guidance for assessing whether a sustainability agreement qualifies for exemption to competition rules follows that set out under Section 9(1) of the Competition Act 1998. Namely, agreements must satisfy four cumulative conditions:

1. the agreement must result in clear benefits (improving production or distribution or contributing to technical or economic profits);
2. the agreement must be indispensable to achieving those benefits;
3. consumers must receive a fair share of the benefits; and
4. the agreement must not eliminate competition.⁶

The third criterion, namely demonstrating that consumers receive a fair share of the benefits, is likely to prove the most challenging criterion for parties to a sustainability agreement to satisfy. The “standard” approach to assessing this, which the CMA applies generally to assessing any anticompetitive agreement under Section 9 of the Competition Act 1998 (i.e. not specifically sustainability agreements), is to consider the benefits accrued by consumers of the products or services to which the agreement relates, or “consumers in the relevant

⁴ Draft Guidance, paragraph 2.4.

⁵ Ibid.

⁶ Draft Guidance, paragraph 5.2.

market”.⁷ Under this standard framework, the costs to these consumers must be offset by the benefits received by these same consumers.⁸ In relation to climate change agreements, the CMA is proposing to depart from the standard approach: for these agreements, the totality of the benefits to all UK consumers can be taken into account when benchmarking against costs.⁹ This means that out-of-market benefits can be factored into the assessment as well as those that accrue within the market in question.

We welcome this modification to the CMA’s framework for assessing climate change agreements. As noted above, the negative effects of production processes or consumption habits that contribute to climate change will be borne by society at large, rather than solely by consumers of the specific good or services in question. By including out-of-market benefits in the cost-benefit analysis of such agreements, the proposed framework will allow the CMA to factor these negative externalities into its decision-making. This, in turn, will allow the CMA to take decisions that lead to more socially efficient outcomes.

The CMA’s proposed framework in this case is also consistent with one of the core objectives of protecting effective competition – namely to ensure that prices reflect costs. There is a false equivalence in assuming that any development which results in lower prices – and therefore more consumption – must mean that competition is working more effectively (and vice versa). Instead, a well-functioning competitive market should send consumers price signals that disincentivise them from consuming more of a product or service when the costs of this – both to the consumers themselves and to society as a whole – outweigh the benefits. Well-designed climate change agreements could help some markets work more effectively in this regard.

The same approach should apply to other types of environmental sustainability agreement

When considering other types of environmental sustainability agreement, the Draft Guidance sets out that, when assessing whether consumers receive a fair share of the benefits of the agreement, only benefits realised within the relevant market should count. It follows that, under the CMA’s framework, *“the costs to those consumers of the restrictive effect must be offset by the benefits those customers receive”*.^{10,11} While the CMA recognises that wider societal benefits may also exist, the CMA is clear that *“only the proportion of these wider societal*

⁷ Draft Guidance, paragraph 5.19.

⁸ We note that, in principle, this approach is sensible and necessary to avoid the core objective of antitrust to protect competition in the market stepping into policymaking. However, for the reasons set out in this note, a departure from this standard approach is needed for all environmentally sustainable agreements.

⁹ Draft Guidance, paragraph 6.4.

¹⁰ Draft Guidance, paragraph 5.19.

¹¹ For completeness, we note that the CMA further clarifies that, where two markets are related, benefits achieved on separate markets can be taken into account *“provided that consumers affected by the restrictions and receiving the benefit are substantially the same or substantially overlap”*. Draft guidance on the application of the Chapter I prohibition in the Competition Act 1998 to environmental sustainability agreements, dated 28 February 2023, paragraph 5.20.

benefits that can be apportioned to consumers of the product in question (and, where appropriate, in related markets) is relevant for the assessment".¹² The CMA's restrictive approach to exempting these types of environmental sustainability agreement from competition rules risks preventing genuine sustainability agreements which cannot clear this unnecessarily high hurdle from taking corrective action to address market failures which result in social detriment.

We disagree with the CMA's approach in this case and argue that the same framework set out for climate change agreements should be applied equally to all types of environmental sustainability agreement. This is for the following reasons:

- First, as noted above, **a wide range environmental concerns – ranging from biodiversity loss to pollution – are being driven by the same economic dynamics that are driving climate change**, with the actions of individual businesses and consumers creating wider costs that are not borne by these businesses or consumers themselves leading to resources being misallocated from a societal perspective. From an economic perspective there is no justification for acknowledging the dynamics of these negative externalities in the context of climate change concerns while setting up the system to ignore them for all other environmental concerns.
- Second, **while the CMA rightly observes that climate change represents a risk of significant proportions to society, we do not agree that other types of environmental threat should be treated with less urgency**. According to the CMA, climate change agreements represent a "*special category of threat*" given the sheer magnitude of the risk they represent and the level of public concern.¹³ However, other types of environmental threat also pose an urgent and grave threat to human welfare.
 - To give one example, scientists have identified biodiversity loss as an imminent and existential threat, with some studies suggesting that we are currently experiencing the world's *sixth mass extinction* of species in planetary history.¹⁴ Almost half of global Gross Domestic Product depends on well-functioning biodiversity and a report by the World Economic Forum classifies biodiversity loss as almost on a par with climate action failure in terms of global risk.¹⁵ Biodiversity loss threatens major supply chains with negative consequences for health, trade, economic development, equality and world peace.¹⁶ There are therefore no grounds for viewing biodiversity

¹² Draft Guidance, paragraph 5.21.

¹³ Draft Guidance, paragraph 1.11.

¹⁴ IPBES, Global assessment report on biodiversity and ecosystem services (2019), <https://ipbes.net/global-assessment>

¹⁵ World Economic Forum, New Nature Economy Report (2020), https://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf

¹⁶ World Economic Forum, New Nature Economy Report (2020), https://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf

loss as a less urgent or less consequential problem that should be placed further down on the policy agenda.

- Moreover, there are significant interlinkages and feedback loops between climate change and the natural world, which mean that biodiversity loss accelerates and magnifies climate change and vice versa, with healthy ecosystems acting as powerful carbon sinks.¹⁷ If society is serious about tackling climate change, it needs to think holistically about the problem and not treat the atmosphere as separate and unrelated to the natural world. Similarly, it makes no sense to ignore the concomitant benefits of climate change initiatives in reducing biodiversity loss, especially where both the climate-related and biodiversity benefits to society as a whole can be clearly quantified (see below).
- Third, **the UK has signed up to binding targets to address other types of environmental harm besides climate change.** The Draft Guidance notes that the UK has signed up to binding national and international targets and commitments to tackle climate change.¹⁸ However, binding targets also exist for other types of environmental harm. Again concerning biodiversity loss, the United Nations Biodiversity Conference (COP 15) met in December 2022 and agreed on an international framework to address the problem.¹⁹ In the UK specifically, the 2021 Environment Act requires the UK government to set out a series of binding targets in relation to air quality, water quality, biodiversity and resource efficiency and waste reduction.²⁰ The government published its legally-binding targets in December 2022, which are as follows:²¹
 - *“Halt the decline in species populations by 2030, and then increase populations by at least 10% to exceed current levels by 2042*
 - *Restore precious water bodies to their natural state by cracking down on harmful pollution from sewers and abandoned mines and improving water usage in households*
 - *Deliver our net zero ambitions and boost nature recovery by increasing tree and woodland cover to 16.5% of total land area in England by 2050*
 - *Halve the waste per person that is sent to residual treatment by 2042*

¹⁷ See for example <https://www.europarl.europa.eu/news/en/headlines/society/20200109STO69929/biodiversity-loss-what-is-causing-it-and-why-is-it-a-concern>, last accessed on 30 March 2023.

¹⁸ Draft Guidance, paragraph 1.11.

¹⁹ <https://www.unep.org/un-biodiversity-conference-cop-15>, accessed 4 April 2023.

²⁰ <https://www.legislation.gov.uk/ukpga/2021/30/part/1/chapter/1/crossheading/environmental-targets/enacted>, accessed 4 April 2023

²¹ <https://www.gov.uk/government/news/new-legally-binding-environment-targets-set-out>, accessed 4 April.

- *Cut exposure to the most harmful air pollutant to human health – PM2.5*
- *Restore 70% of designated features in our Marine Protected Areas to a favourable condition by 2042, with the rest in a recovering condition.”*
- Fourth, **by restricting the benefits that may count for the assessment for many types of sustainability agreements, the CMA may be unnecessarily complicating the assessment** under Section 9. While quantifying the benefits of agreements that seek to mitigate biodiversity loss and other environmental harms is likely to be more challenging than those for climate change agreements (where tools for valuing carbon abatement have already been well-established and in use for some years), there are methods and resources from the field of environmental economics that could be effectively deployed here (see next section for some examples). However, by requiring that only a proportion of the benefits that accrue to consumers be factored into the assessment, the CMA is unnecessarily making the cost-benefit assessment even more complex. Consider, for example a hypothetical agreement which seeks to conserve biodiversity on UK farmland used for crop production: the benefits of biodiversity conservation may take numerous guises which could range from localised effects (enjoyment of richer wildlife) to national (preserving the genetic bank of pollinator species). Under the CMA’s proposed approach, the parties must (1) delineate which of those benefits accrue to consumers of UK-grown crops and (2) delineate which parts of the total population benefit overall, such that the applicable valuation of the benefits can be downscaled accordingly. In addition to systematically ignoring a large proportion of the potential benefit of the agreement, this may be a challenging exercise that further complicates the assessment and creates more work for all parties – including the CMA.

For these reasons, we disagree with the CMA’s framework for assessing other types of sustainability agreement and would encourage the CMA to harmonize this with its framework for assessing climate change agreements in the final version of the Guidance.

How can sustainability benefits be quantified in practice?

The Draft Guidance notes that some form of quantification may be necessary to weigh up the costs and benefits of an environmental sustainability agreement, even if it may not always be necessary to quantify the benefits precisely. However, the Guidance provides little practical guidance on how the CMA will go about assessing the benefits of such agreements in practice. We would encourage the CMA to provide more guidance on some of the techniques that businesses could use to quantify these benefits, both in the Guidance itself and through reports on its decisional practice.

While the costs and benefits of a proposed agreement will need to be assessed on a case-by-case basis, there are a number of established methodologies that are widely used in government and elsewhere to quantify the benefits of environmental sustainability measures. Further guidance and examples of how businesses might use these methodologies in their submissions to the CMA would be especially valuable for smaller businesses with limited resources and little experience in applying the techniques that UK policymakers and regulators use, in order to measure the benefits of the agreements they are considering.

We have provided some case studies on these established practices and techniques for climate change agreements and biodiversity agreements below. We encourage the CMA to share similar case studies alongside its Guidance. Initially, these could be hypothetical examples, but they could be supplemented over time by reports describing:

- the proposals that the CMA has assessed;
- the techniques that the businesses put forward to weigh up the costs and benefits of these proposals; and
- the conclusions that the CMA reached about the appropriateness of these techniques in the context of these proposals.

This clarity on decisional practice would be in line with the CMA's commitment to be open and transparent about the work it does (while of course redacting or anonymising these reports where appropriate). This transparency would prevent unnecessary repetition of work, by allowing businesses to learn from previous decisions and tailor their own submissions in a way that the CMA would find helpful.

Assessing the benefits of climate change agreements

The most appropriate measure of the marginal abatement cost for carbon emissions

The carbon price used in decision making should represent a monetary value that society places on emissions.²²

The CMA states that there are “*established instruments for carbon pricing such as the UK Emissions Trading Scheme, which may be applied to convert the reduction in greenhouse gas emissions into monetary values*”.²³

However, rather than using the carbon price from the UK Emissions Trading Scheme (UK ETS), we recommend that the CMA follows the Government’s *Green Book Supplementary Guidance*²⁴ on valuing emissions. This sets a value of carbon that is consistent with the estimated level of marginal abatement cost required to reach the targets that the UK has adopted across the whole economy. In contrast, the UK ETS price represents the marginal abatement cost only in the sectors covered by the UK ETS.²⁵

As set out in the Government’s Green Book guidance, any abatement that costs less than the estimated marginal abatement cost of meeting the UK’s economy-wide targets should be undertaken, as this would represent a cost-effective way of meeting the target (illustrated in Figure 1 below). Correspondingly, any abatement that costs more than the target-consistent marginal abatement cost should not generally be undertaken, as this indicates that a more cost-effective alternative abatement measure exists elsewhere in the economy.

Under this framework, using the UK ETS values for carbon, rather than the economy-wide value risks setting the decision point for abatement actions at the wrong level. For the application of carbon values to result in an optimal outcome, the carbon value being applied should reflect the whole-economy marginal abatement cost rather than the abatement cost that applies to only a subset of sectors.

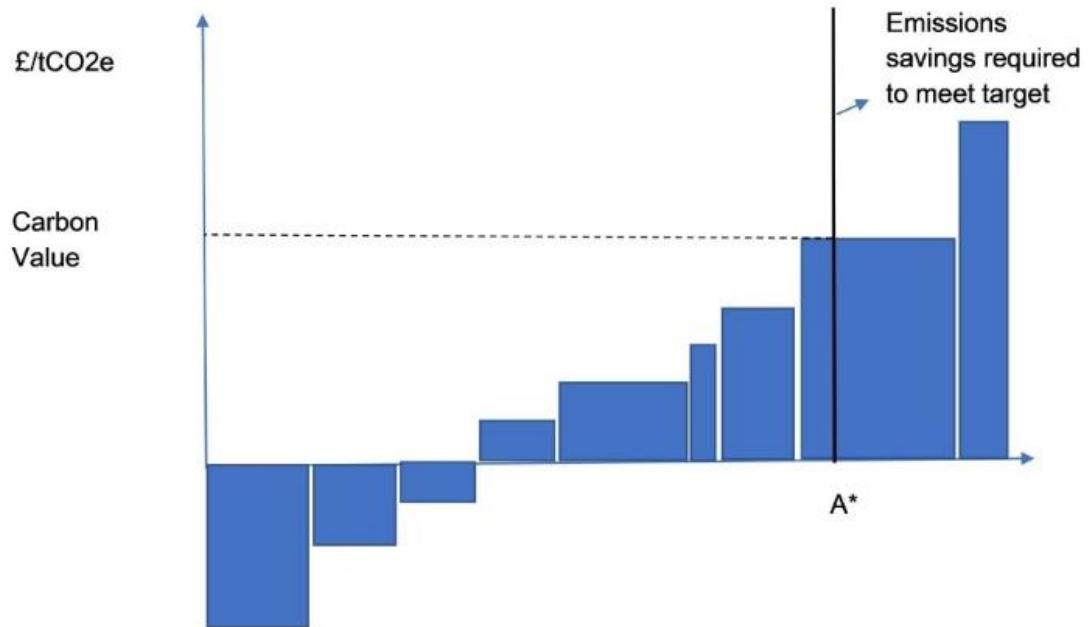
²² <https://www.gov.uk/government/publications/valuing-greenhouse-gas-emissions-in-policy-appraisal/valuation-of-greenhouse-gas-emissions-for-policy-appraisal-and-evaluation>

²³ Draft Guidance, paragraph 5.25.

²⁴ <https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal>

²⁵ Currently, the UK ETS covers power generation, energy-intensive industries, and domestic aviation.

Figure 1 Illustrative marginal abatement cost approach



Source: BEIS, 2021, <https://www.gov.uk/government/publications/valuing-greenhouse-gas-emissions-in-policy-appraisal/valuation-of-greenhouse-gas-emissions-for-policy-appraisal-and-evaluation>

Case study from the energy sector

Frontier routinely applies carbon values in undertaking cost benefit analyses of abatement actions. We do this to ensure that the societal value of any change in emissions associated with a policy or investment is taken into account in decision making.

In the UK, we use the carbon values recommended by the Green Book Supplementary Guidance.²⁶ These are based on the marginal abatement cost of meeting the UK's greenhouse gas emissions targets as described above.

For example, we recently undertook a cost benefit analysis of an intervention to enable electric vehicle (EVs) charge-point investment for UK Power Networks.²⁷ In this case, we factored in the social value of changes in emissions by applying Green Book values to greenhouse gas emissions and air quality emissions. This was based on the assumption that earlier investment in charge-points would enable faster take up of EVs, and therefore reduce emissions from petrol and diesel vehicles. To apply the social values, we estimated emissions from vehicles in the counterfactual (without the intervention) and compared these to emissions with the intervention. We took the difference in emissions and multiplied them by the Green Book values, applying a social discount rate to take account of time preferences, and accounting for higher air quality damage costs in some locations such as denser urban areas.²⁸ The resulting analysis found that the intervention to enable charge-point investment yielded a significant social benefit.

Assessing the benefits of other types of agreements

The benefits arising from other types of sustainability agreement could manifest themselves in various ways, depending on the context of the agreement. For example, agreements may seek to achieve reductions in air pollution, packaging or other types of waste, waste emissions into water bodies, reductions in the use of harmful inputs in the supply chain or changes in land use. The benefits of these changes may be multi-faceted and may include outcomes such as improvements in water quality, air quality, reductions in environmental pollutants, improvements in soil health and the conservation and preservation of natural habitat for biodiversity. Substantial research has been done in the field of environmental economics in

²⁶ <https://www.gov.uk/government/publications/valuing-greenhouse-gas-emissions-in-policy-appraisal/valuation-of-greenhouse-gas-emissions-for-policy-appraisal-and-evaluation>

²⁷ <https://innovation.ukpowernetworks.co.uk/wp-content/uploads/2023/03/Charge-Collective-WP1-learning-handbook-Final.pdf>

²⁸ For further discussion of the appropriateness or otherwise of applying a discount factor in quantifying sustainability benefits, please refer to:
https://www.sustainabilityfirst.org.uk/images/publications/other/A_Framework_for_Assessing_Intergenerational_Effects_of_Decarbonisation_and_Climate_Adaptation.pdf

how to place a monetary value on non-market outcomes for the purposes of incorporating them into economic decision making, which is helpful for valuing these types of benefits.

A direct transposition of the principles for valuing emissions reductions onto these types of agreements would involve calculating the economy-wide marginal abatement costs to avoid the various types of environmental harm. This may be possible in principle, but in practice many of the approaches to valuing biodiversity or improvements in environmental outcomes currently in use in other fields are quantified using alternative shadow pricing concepts. Commonly, these include “stated” or “revealed” preference methods for capturing consumer use or non-use value of the benefits (“willingness-to-pay”), avoided healthcare costs or by considering the environmental outcome as an input into an economic process and measuring the value of the productivity change in the marketed good.²⁹ Conceptually, many of these methods do not capture the cost of abatement but rather the economic or non-economic value of nature as a resource for anthropological purposes.

Approaches for valuing non-marketed goods and services

Parties seeking to evidence the monetary value of the benefits of a sustainability agreement do not need to re-invent the wheel, but could draw upon existing tools that have been developed for this purpose in a regulatory or policymaking context. In particular, the following resources may prove useful for quantifying the monetary value of improvements in environmental outcomes as a result of an agreement:

- The Department for the Environment, Food and Rural Affairs (“DEFRA”) Enabling a Natural Capital Approach (“ENCA”) *Asset Databook* for changes in land use.³⁰ This resource collates data sources for valuations of eight different natural capital asset categories for the UK;
- The DEFRA ENCA *Services Databook* for changes in environmental outcomes or impacts.³¹ This resource similarly collates data sources for valuations of ecosystem services³² (e.g. flood regulation) and environmental impacts (e.g. air pollution);
- Natural England’s biodiversity metric, which is a tool developed in conjunction with DEFRA for assessing the biodiversity value of different parcels of land (or habitat types),

²⁹ A range of other methods exist. Markandya, A. et al (2002), *Environmental Economics for Sustainable Growth: A Handbook for Practitioners*, Edward Elgar Publishing Limited, UK provides a good summary of many of the available methods.

³⁰ <https://www.gov.uk/guidance/enabling-a-natural-capital-approach-enca>

³¹ <https://www.gov.uk/guidance/enabling-a-natural-capital-approach-enca>

³² “Ecosystem services” are services provided by healthy ecosystems which carry anthropological value that may be derived through economic, natural regulatory or cultural use or alternatively because they carry an “existence” value. Examples of *regulatory* ecosystem services include flood prevention, pollution filtration and fixing carbon and nitrogen in soils. Examples of *productive* ecosystem services include production of timber, honey or other useful inputs. Examples of *cultural* ecosystem services include provision of leisure and education opportunities. See for example, Dasgupta (2021), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962785/The_Economic_s_of_Biodiversity_The_Dasgupta_Review_Full_Report.pdf

where the output is measured in “biodiversity units”.³³ Different types and quality of natural habitat carry different numbers of biodiversity units. This is a tool which has been developed for planning permission purposes to support developers in delivering on the government’s “biodiversity net gain” condition³⁴ for housing and other types of development. It is also being recommended for use by agents in other regulatory contexts (e.g. OFWAT).³⁵ DEFRA recommends a tariff rate of £9,000 to £15,000 per biodiversity unit which represents the “cost” if developers are unable to mitigate biodiversity loss;³⁶

- The Government’s Green Book Supplementary Guidance includes values that can be applied in decision making to take account of the social costs of air quality;³⁷
- In addition, there is a significant body of academic literature where authors have derived monetary values for specific environmental improvements, beyond those studies listed in the DEFRA ENCA Databooks mentioned above.

All these sources of values may be used as meta data for placing monetary values on comparable environmental benefits in specific situations, provided that parties are cautious in ensuring that the methods used in the selected studies are appropriate and the derived values applicable to the case at hand.³⁸

Case study from the water sector

Frontier Economics has used the methods and resources described in the previous section to estimate social benefits values generated by certain environmental measures for clients in the private and charity sectors. To give one example, we have quantified the monetary value of the social benefits that would be generated by investment by a client in the UK water sector in different environmental schemes. The investments were targeted at delivering on the company’s net zero strategy but in addition would deliver various other environmental benefits. In order to value these various environmental benefits, we conducted an extensive literature

³³ <https://www.gov.uk/guidance/biodiversity-metric-calculate-the-biodiversity-net-gain-of-a-project-or-development>

³⁴ <https://www.gov.uk/guidance/understanding-biodiversity-net-gain>

³⁵ Ofwat as the water economic regulator has set out for the next price control, PR24 (that will run from 2025-2030), that companies need to meet targets on a new biodiversity performance commitment (PC) under the regulatory framework. Its final methodology states that it will use the Natural England biodiversity metric to measure any improvements against companies’ targets over this and subsequent price control periods. See section 4.1 here: https://www.ofwat.gov.uk/wp-content/uploads/2022/12/PR24_final_methodology_Appendix_7_Performance_commitments.pdf

³⁶ https://consult.defra.gov.uk/land-use/net-gain/supporting_documents/netgainconsultationdocument.pdf, p.37; “We propose that the biodiversity net gain tariff price should cover the costs of: replacing and maintaining lost habitats, taking account of variation in land prices across the country; and delivery and monitoring costs of the compensation scheme. The tariff price should also provide an incentive to: retain habitat on site and to limit local habitat losses; and seek net gain through use of local habitat creation schemes (whilst also encouraging cost-efficiency in local habitat creation or enhancement schemes).” Notably, the definition of the tariff here is akin to the concept of the marginal abatement cost.

³⁷ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/112924/valuation-of-energy-use-greenhouse-gas-emissions-for-appraisal.pdf

³⁸ And provided parties to the agreement are able to quantify the projected changes resulting from the agreement (which they would need to do to satisfy the first criterion for exemption).

review to identify pre-existing valuations which could be applied to translate the benefits into monetary terms. We vetted the various sources of valuation to ascertain their applicability to the case in hand (considering factors such as the scale of the intervention, the location and the type of valuation) and drew upon sources recommended by DEFRA, the Green Book Guidance and other government and academic sources.

In applying these values, we estimated the different types of benefits that two high-level programmes might expect to deliver: 1) The value of improved water quality (e.g. reducing dissolved organic carbon) through investment in peatland restoration; and 2) the value of increased biodiversity through investment in tree-planting. We did so by multiplying the projected change in water quality and biodiversity based on data provided to us by the client with the monetary value we had derived from our literature review. To estimate the change in biodiversity resulting from tree-planting, we first utilised Natural England's biodiversity metric tool to calculate the number of biodiversity units that would be generated through the scheme, before multiplying that with the benefit values per biodiversity unit (£9,00-£15,000 as above) provided in the tool. Based on this methodology, we estimated the benefits of these investment programmes to be in the magnitude of several million pounds for water quality improvement and several hundreds of thousands for improving biodiversity. Notably, these projects were highly localised and larger-scale projects would likely deliver greater benefits.

Case study of a hypothetical sustainability agreement

In order to illustrate how the resources described above might be applied in the context of a sustainability agreement, here we set out an example valuation of a hypothetical sustainability agreement. The hypothetical agreement that we assess is an agreement between UK food retailers to source certain categories of agricultural produce solely from UK farmers who commit to implementing a schedule of eco-agricultural practices on their farms which carry environmental benefits. This kind of agreement was described by several respondents to the European Commission's 2020 call for contributions on sustainability agreements.³⁹

The agreement may create additional costs for some consumers if the implementation of the eco-agricultural practices increases the costs of food production which are then passed on to consumers in the form of higher prices. If this is the case, under the CMA approach, the benefits of the agreement (accruing to consumers in the market) must be compared to the cost to the consumer to assess whether the third condition for exemption under Section 9 of the 1998 Competition Act is satisfied. This will necessitate valuing the benefits as a first step.

While there may be a range of agro-ecological practices which farmers could adopt in practice, we focus on three basic "interventions" for demonstrative purposes in this hypothetical example. In the event of a real sustainability agreement of this nature, parties could consider

³⁹ See, for instance, the response of FoodDrinkEurope, available here: https://www.fooddrinkEurope.eu/wp-content/uploads/2021/02/FoodDrinkEurope_contribution_Green_deal_and_competition_policy.pdf

a fuller range of interventions and associated benefits. The three interventions we evaluate include:

- I.1. Farmers increasing the acreage of hedgerow on their farmland, with a target of an increase in the total length of UK hedgerows on farmland by 10%;⁴⁰
- I.2. Farmers enhancing the diversity of flora species in hedgerows and protecting young hedge plants from browsing and grazing animals⁴¹, with a target of an improvement in hedgerow quality by one category (e.g. from 'poor' to 'moderate') in 10% of existing UK farmland hedgerows;⁴²
- I.3. Farmers reducing usage of pesticides and synthetic fertilisers used on crops and implementing good soil and manure management practices in order to reduce agricultural run-off⁴³, with a target of an improvement in the quality of 10% of UK waterways by one category (e.g. from 'poor' to 'moderate').⁴⁴ Restoring water bodies and removing harmful pollutants from water is one of the legally binding targets the UK government has set itself under the Environment Act.⁴⁵

All three interventions would be expected to bring significant developments in terms of increasing habitat for wildlife and enhancing biodiversity. We have therefore utilised Natural England's biodiversity metric to quantify the improvement in biodiversity these interventions would bring about compared to a "status quo" baseline scenario.⁴⁶ The baselines we adopt are specified as the current total UK "stock" of hedgerow and watercourses (including by quality category), as follows:

⁴⁰ Notably, the Committee on Climate Change ("CCC") classifies a 20% increase of hedgerow length across the UK as a priority recommendation for meeting the UK's Net Zero targets: <https://www.theccc.org.uk/wp-content/uploads/2021/06/CCC-Joint-Recommendations-2021-Report-to-Parliament.pdf>

⁴¹ <https://defrafarming.blog.gov.uk/sustainable-farming-incentive-pilot-guidance-plant-and-manage-hedgerows/>

⁴² Natural England's biodiversity metric tool differentiates between three hedgerow conditions: high, moderate, and poor. For I.2, we assume that 10% of hedgerows of each condition category increase by one rank meaning that 10% of hedgerows defined as 'poor' in the baseline are improved to 'moderate' condition and 10% of hedgerows defined as 'moderate' in the baseline are improved to 'high' condition, after the intervention.

⁴³ <https://www.fao.org/3/i7754e/i7754e.pdf>

⁴⁴ As above, in Natural England's tool, we are able to differentiate between different feature conditions. In the case of waterways however, we are able to differentiate between 5 different categories, with the addition of 'fairly poor' and 'fairly high'. As above, for I.3, we assume that 10% of waterways of each condition category increase by one rank meaning that after the intervention, 10% of waterways defined as 'poor' in the baseline are improved to 'fairly poor', 10% of waterways defined as 'fairly poor' in the baseline are improved to 'moderate', and so forth.

⁴⁵ <https://www.gov.uk/government/news/new-legally-binding-environment-targets-set-out>

⁴⁶ Other methods and resources for valuing biodiversity exist. However, we find the DEFRA biodiversity metric tool is a helpful resource which is reasonably comprehensive in analysing habitat change whilst simultaneously being easy to use.

I.1. and I.2.

- 271,375 km of native hedgerows currently located on farmland within the UK⁴⁷, of which:
 - 40% are species-rich^{48,49}
 - 41% are in good or moderate condition and 59% are in poor condition⁵⁰
- This equates to a baseline of 1,227,161 biodiversity units.

I.3.

- 200,000 km of inland waterways⁵¹, of which:
 - 50% are assumed to be rivers or streams and 50% canals⁵²
 - 3% are in good condition, 30% are in fairly good condition, 49% are in moderate condition, 16% are in fairly poor condition and 3% are in poor condition⁵³.
- This equates to a baseline of 1,522,372 biodiversity units.

The improvements brought about by the agreement are a 10% increase from each of these baselines, which implies an associated increase in the number of biodiversity units (which may be more or less than 10% in practice depending on the parameters of the biodiversity metric

⁴⁷ The Woodland Trust estimates that there is 95,000 miles (=152,888 km) of species-rich hedgerow in the UK and this accounts for 40% of all UK hedgerow (source: <https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/habitats/hedgerows/>). On this basis, we divide 152,888 by 40% to obtain a total UK hedgerow mileage of 382,219 km. In order to estimate hedgerow length on farmland, we then multiply this by 71%, which is the proportion of UK land use accounted for by farmland - DEFRA, 2021. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1106562/AUK_Evidence_Pack_2021_Sept22.pdf.

⁴⁸ <https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/habitats/hedgerows/>

⁴⁹ Different types and qualities of habitat carry different numbers of biodiversity units. For instance, species-rich native hedgerow carries a higher value than standard native hedgerow. We do not evaluate an improvement in the quality of already "good" quality hedgerows.

⁵⁰ Hedge Link (NGO) states that 41% of UK hedgerows are in 'favourable condition'. In the modelling, we interpret this as meaning either moderate or good condition and assume a conservative 50/50 split between hedgerows in moderate and good condition, for simplicity. We therefore assume 59% of UK hedgerows are in poor condition. (source: <https://hedgelink.org.uk/guidance/importance-of-hedgerows/>)

⁵¹ <https://nrfa.ceh.ac.uk/uk-river-flow-regimes#:~:text=Almost%201500%20discrete%20river%20systems,to%20considerable%20man%2Dmade%20disturbance>

⁵² Simplifying assumption, based on available categories in the Natural England tool. Rivers and streams carry a higher biodiversity value than canals.

⁵³ <https://jncc.gov.uk/our-work/ukbi-b7-surface-water-status/>. We do not evaluate an improvement in the quality of already "good" quality rivers/streams.

tool).⁵⁴ It is possible to place a monetary value on the increase in biodiversity units using the tariff rates of £9,000 to £15,000 per biodiversity unit recommended by DEFRA⁵⁵ as described above. On the basis of these tariff rates, we estimate the value of the improvements in biodiversity resulting from these three interventions to be in total **ca. £1.6-2.7 billion**.⁵⁶

Table 1, below, sets out our estimated improvements for each intervention and their associated ranges of monetary values.

Table 1 Valuation of improvement in biodiversity resulting from example interventions

Intervention	Description	Benefit (biodiversity units)	Associated monetary value (£m, 2017) ⁵⁷
I.1	+ 10% length of UK hedgerows	+ 99,807	+ £898 - £1,497
I.2	improvement of hedgerow quality for 10% of UK hedgerows	+ 54,792	+ £493 - £822
I.3	improvement of water quality for 10% of UK rivers, streams, and canals	+ 22,501	+ £203 - £338

Source: Frontier Economics analysis using Natural England/DEFRA 'Metric 4.0 Calculation tool'

These estimates are likely to represent a lower bound for the following reasons:

- It was necessary to make certain simplifying assumptions about the categorisation of the UK stock of hedgerows on farmland and UK waterways in terms of government conservation strategy to make this simple exercise tractable. Namely, we assumed that none of the baseline hedgerows or waterways are categorised as strategically important or identified as being part of a local biodiversity strategy, which does not represent reality.

⁵⁴ The relationship between increase in stock of natural assets and biodiversity units is not exactly 1:1 due to the way in which the biodiversity metric weights certain characteristics of habitat and due to the estimated time it takes to implement the intervention.

⁵⁵ https://consult.defra.gov.uk/land-use/net-gain/supporting_documents/netgainconsultationdocument.pdf, p.37

⁵⁶ We have not attempted to convert this into net present value terms. The appropriateness of applying a discount factor to future benefits in the context of sustainability measures is in any case contestable. See for example: https://www.sustainabilityfirst.org.uk/images/publications/other/A_Framework_for_Assessing_Intergenerational_Effects_of_Decarbonisation_and_Climate_Adaptation.pdf

⁵⁷ This range is based on a 2019 DEFRA Impact Assessment assumption that one biodiversity point could range in value from £9,000 to £15,000 (2017 price base) in added biodiversity value.

Natural assets which are identified as one of these are associated with a higher biodiversity unit score and therefore improvements carry a higher monetary value;

- These outcomes only take into account the gains associated with increased biodiversity resulting from these three interventions. However, each of these interventions may also carry a host of other ecosystem service benefits beyond increasing biodiversity (such as carbon sequestration or flood prevention), which also carry an anthropological value. For example, intervention I.3 could generate an additional value of ca. £168m/year in terms of amenity, recreation and “non-use” value for consumers according to a more holistic valuation of watercourse quality improvements put forward by the UK Environment Agency.⁵⁸

Parties to sustainability agreements may wish to provide a more complete assessment of all the different types of benefits associated with their proposed measures, particularly where the consumer harm may be large. Carbon sequestration benefits may be valued using the marginal abatement cost method described above. The resources set out in the preceding section provide helpful guidance in sourcing pre-existing valuations for other types of benefit including changes in land use or ecosystem service provision.

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https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/291464/LIT_8348_42b_259.pdf. Caveat: there is some overlap in this valuation with increases in biodiversity.

Conclusions

We have set out in this response two recommendations for improving the CMA's Guidance on sustainability agreements. The first suggestion, namely that out-of-market benefits should be incorporated in the assessment for all types of sustainability agreement, seeks to ensure that businesses are able to take action to correct negative environmental externalities associated with their activities whenever it is cost-effective to do so from a *societal* perspective. The second suggestion, namely that the CMA should provide more specific guidance for businesses on how to value sustainability benefits, seeks to ensure that the CMA's framework for assessment can be implemented in practice. We have put forward several examples of how methodologies and resources from the field of environmental economics may be deployed effectively in assessing sustainability agreements. We would be happy to discuss any of this further with the CMA should that be useful.

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■  [redacted]

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