

CARBON VALUATION

To: Environment and Sustainability Committee

Meeting Date: 15 October 2020

From: Steve Cox, Executive Director, Place and Economy

Electoral division(s): All

Forward Plan ref: 2020/045

Key decision: Yes

Outcome: The Committee is asked to consider applying a value to carbon emissions to improve the Council's environmental decision making.

The intended outcome is a decision on whether and how to include carbon valuation in all business cases coming forward, such as investment decisions, procurements, new projects or changes to services.

Recommendation: a) The Council to implement a virtual 'internal carbon price', based on the UK Government's method of using the EU Emissions Trading Scheme (ETS) price for traded emissions (such as electricity) and the Department for Business, Energy and Industrial Strategy (BEIS) forecast carbon value for non-traded emissions (such as those from heat or transport).

b) The internal carbon price to be built into all applicable business cases, updating templates where used, in order to understand how and which decisions may differ when the cost of carbon is taken into account.

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1. Background

- 1.1. In February 2020, the Council adopted a fourth corporate objective to deliver net zero carbon for Cambridgeshire by 2050, and included a £16million Environment Fund in its budget plan, to support delivery of its commitments set out in the Climate Change and Environment Strategy approved in May 2020 at Full Council.
- 1.2. The Council's Climate Change and Environment Strategy contains a commitment to a number of targets, including reducing our 'scope 1' (direct) emissions by 50% by 2023 (compared to 2018 levels), reduce our 'scope 3' (indirect) emissions by 50.4% by 2030, and to deliver Government's net zero carbon target for Cambridgeshire by 2050. To deliver these it will be necessary to gain a better understanding of how our decisions impact on our carbon emissions.
- 1.3. With the risk and impacts of climate change becoming more evident and the need to pay for carbon emissions emerging as a part of the cost of doing business, more organisations and governments are looking to put a price on carbon. According to the Carbon Disclosure Project (CDP) there are more than 1000 companies reporting that they price carbon internally or plan to do so in the next one to two years.
- 1.4. In June 2020, the Council's Environment and Sustainability Committee agreed to include carbon valuation in the business cases for the programme of renewable heating projects coming forward this year.
- 1.5. This paper addresses the matter of how to apply the same principles of carbon valuation, more widely across the Council's other business cases and decision making processes in future. The intended outcome is a decision on whether and how to include carbon valuation in all business cases coming forward.

2. Main Issues

- 2.1. Governments implement carbon pricing in two key ways - through carbon taxes or through cap-and-trade emissions trading systems. Prices vary significantly by region and sector.
- 2.2. However, internal carbon pricing is a decision-making tool that organisations use to understand their exposure to external carbon pricing schemes and guide their business decisions and investments. An internal or shadow price on carbon creates a theoretical or assumed cost per tonne of carbon emissions. This has the benefits of being able to assess the profitability of projects in different scenarios, future-proof investment decisions, stimulate ideas on how to best allocate capital in a low carbon economy, and demonstrate that we are taking the risks of climate change seriously.
- 2.3. An internal carbon price could be based on any of, or a combination of:
 - The social cost of carbon;
 - The market price of carbon, such as that in the EU Emissions Trading Scheme;
 - The cost of abatement;
 - The cost of purchasing offsets.These four options are explained below.
- 2.4. Firstly, the social cost of carbon means the estimated cost of the lifetime damage caused per tonne of CO₂ emissions. Note that this is an artificial construct rather than an actual cost incurred – a comparable concept to that of the cost to society from people smoking, for example. In January 2002, a Government Economic Service working paper 'Estimating

the social cost of carbon emissions' suggested £19/tCO₂ within a range of £10 to £38/tCO₂. This cost was set to rise at a rate of £0.27/tCO₂ per year to reflect the increasing marginal cost of emissions. However, the UK Government's carbon valuation framework underwent a major review which concluded in July 2009. The review resulted in adopting an approach that moved away from a valuation based on the damages associated with climate change. Instead, it proposed carbon values that relate to the cost of mitigating emissions.

- 2.5. Secondly, currently the UK participates in the EU Emissions Trading Scheme (ETS). Under the ETS, total applicable emissions are capped, with the cap reducing each year so that total emissions fall. Those organisations emitting less than their allocation can sell their excess allowances to other higher emitters. Every company covered by the scheme must purchase enough allowances to cover all its emissions. The price is thus set by the market for these allowances. The Department for Business, Energy and Industrial Strategy (BEIS) publish forecasts of these prices and use them for valuing the impact of government policies on emissions in the traded sector.
- 2.6. However, not all emissions are included in trading schemes. The EU ETS covers emissions from electricity generation, industrial process emissions, and some aviation emissions, but does not include other emissions such as those from other transport, heating buildings, waste, agriculture, or land use. The Government estimates that around one third of UK emissions are covered by the scheme.
- 2.7. In June 2020 the UK Government published the outcome of its consultation on the future of UK carbon pricing, taking into account the advice issued earlier that month from the Committee for Climate Change on the subject. This confirms that a UK Emissions Trading Scheme will be established, with phase 1 running from January 2021 to 2030. It is likely that this will be linked to the EU ETS, but this is dependent on the outcome of Brexit negotiations. Meanwhile it is designed to operate as either linked or standalone.
- 2.8. Thirdly, BEIS also publish forecasts of carbon values from emissions in the **non-traded** sectors. These are based on the marginal abatement cost (MAC) required to meet UK emissions reduction targets, such as those agreed in international negotiations and the carbon budgets.
- 2.9. In general, the forecast carbon values increase over time, reflecting that costs of measures required to meet the 2050 net zero target will be higher if left to a later date – since those emissions that are easier to abate are generally reduced first.
- 2.10. There are some issues with having two different prices for traded and non-traded emissions sectors, in particular in cases where emissions are moved from the traded to the non-traded sector, which can sometimes lead to unintended consequences.
- 2.11. Traded and non-traded carbon prices are different in the short-term (central scenario of £14/tonne traded and £69/tonne non-traded in 2020), meaning it is currently cheaper to abate carbon emissions in the traded sector. However, the two are projected to converge, becoming equal in 2030 (at £81/tonne) and remaining so in further years (rising to £231/tonne by 2050). This is based on the assumption that there will be a functioning global carbon market by 2030. See **Error! Reference source not found..**

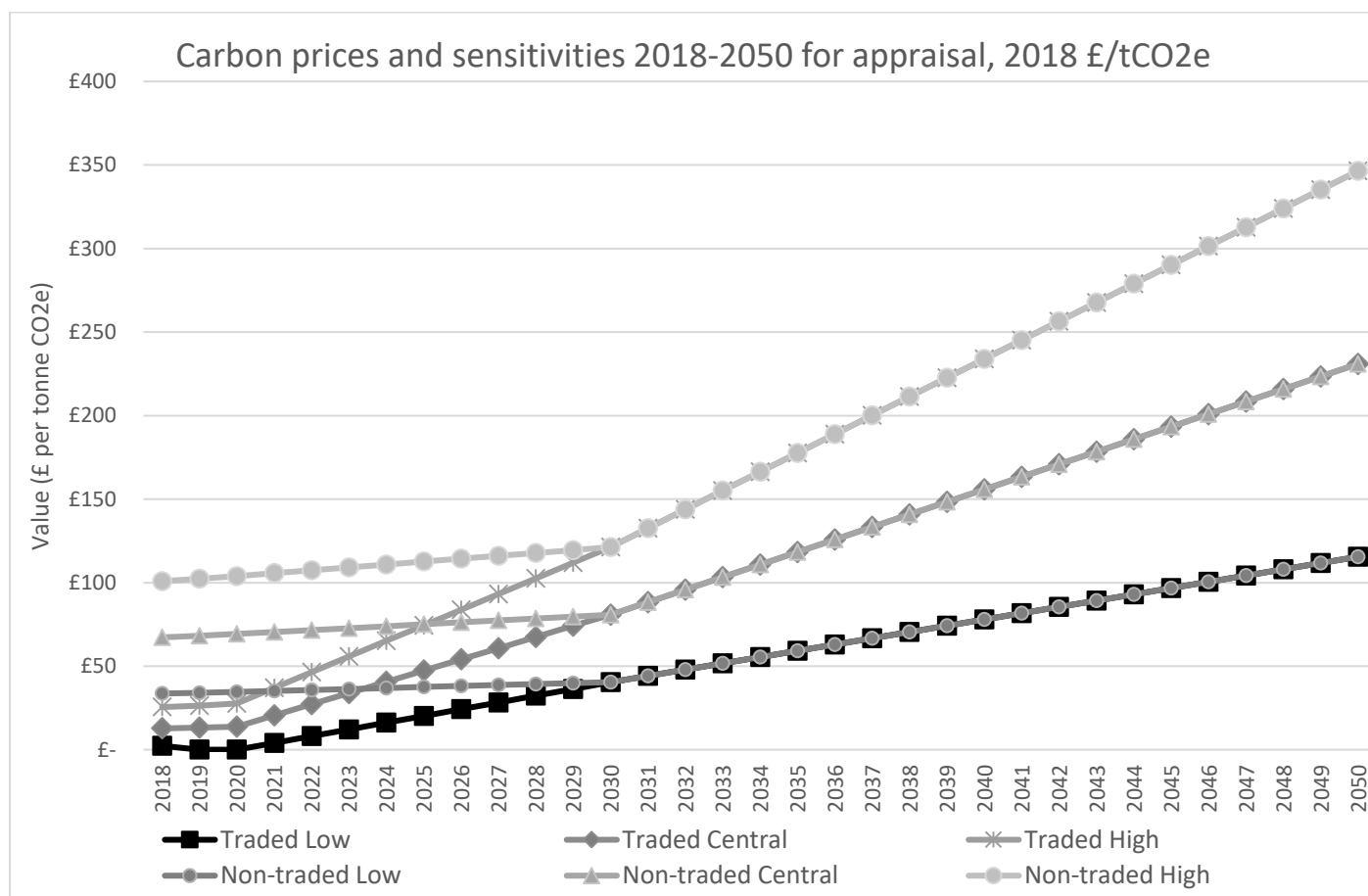


Figure 1: Chart of forecast carbon values in traded and non-traded sectors from 2018 to 2050

2.12. Finally, some organisations choose to offset their emissions by purchasing offsets (which would of course be an actual cost if purchased). The most highly regarded credible option for doing this is the Gold Standard. Gold Standard was established in 2003 by the World Wide Fund for Nature (WWF) and other international Non-Governmental Organisations to ensure that projects that reduced carbon emissions featured the highest levels of environmental integrity and also contributed to sustainable development. At the time of writing (26 August 2020), the cost of this ranges from US\$10 to US\$47 per tonne (=£8 to £36 at current exchange rates), depending on the type of project.

2.13. Here is a comparison of the four valuation methods:

2.14. Method 1: Social cost of carbon.

2020 Price (£ per tonne CO₂e): Estimated £24 (based on £19 in 2002 and rising £0.27 per year).

Projected price in 2030: Unknown

Basis of price: Reflects cost of damage done by emissions.

Notes: Large uncertainties in value. No longer published.

2.15. Method 2: EU ETS

2020 Price (£ per tonne CO₂e): £14

Projected price in 2030: £81

Basis of price: Reflects marginal cost of abating emissions.

Notes: Used by UK Government. Long term forecasts available. Excludes many sources of emissions.

- 2.16. Method 3: BEIS carbon values for non-traded sectors
2020 Price (£ per tonne CO₂e): £69
Projected price in 2030: £81
Basis of price: Reflects marginal cost of abating emissions.
Notes: Used by UK Government. Long term forecasts available.
- 2.17. Method 4: Purchased offsets
2020 Price (£ per tonne CO₂e): Range £8 to £36
Projected price in 2030: Unknown
Basis of price: Actual costs of emission reduction projects
Notes: Meaningless unless we actually purchase them. Can be seen as an excuse to justify continued emissions elsewhere. Forecast future prices unknown.
- 2.18. The Council wishes to mirror the UK Government's method of using the ETS price for traded emissions (such as electricity) and the BEIS carbon value for non-traded emissions (such as those from heat or transport). This means using a combination of methods 2 and 3 detailed above.
- 2.19. It is recommended that carbon prices are built into business cases on this basis (as a 'virtual' cost) and presented alongside the base business case (without carbon prices) in order to understand how and which decisions may differ when the cost of carbon is taken into account. Note that this would work in both directions – a virtual cost for increasing emissions, and also a virtual saving for reducing emissions.
- 2.20. Some organisations choose to go one step further with their internal carbon price, and actually charge the departments responsible for emissions a fee based on the carbon price, which is then collected into a central 'pot' and used on projects to reduce emissions across the organisation. It is not recommended that the Council adopt that approach at this time, because this may have unintended consequences, since some services are necessarily more carbon intensive than others.
- 2.21. Delivering carbon reductions is a whole Council endeavour. The Council has a corporate objective to deliver net zero carbon emission by 2050 and a further two carbon targets in the Climate Change and Environment Strategy that require the support and understanding of everyone in the Council to deliver. Building our collective competency in carbon pricing and reducing carbon in our services must be supported through helping staff to upskill in this area. The idea is to set up workshops for teams, develop new finance templates and write guides for staff to help them include carbon valuation in business cases for committee decisions. It is anticipated that over the next year the organisation will build competencies 'through learning by doing' and the intention is to monitor decisions, analyse the quality of business cases that include carbon pricing and how this has informed decision making. After the first year of implementation, a review should be undertaken to assess the impact that valuation of carbon is having.

3. Alignment with corporate priorities

3.1. A good quality of life for everyone

- There are no significant implications for this priority.

3.2. Thriving places for people to live

- There are no significant implications for this priority.

3.3. The best start for Cambridgeshire's children

- There are no significant implications for this priority.

3.4. Net zero carbon emissions for Cambridgeshire by 2050

Incorporating a valuation of carbon emissions into business cases and decision making, will make a significant contribution towards achieving this priority, by making it clearer how the Council's decisions and investments contribute towards our emissions reduction targets, and thus enabling better decision making that takes this (as well as all other relevant factors) into account.

4. Significant Implications

4.1. Resource Implications

The following bullet points set out details of significant implications identified by officers:

- There will be no direct capital or revenue costs as a result of this proposal. However, officers will need to consider carbon emissions as a virtual cost in business cases.
- Business case templates will need to be updated.

4.2. Procurement/Contractual/Council Contract Procedure Rules Implications

Procurement decisions should take into account the potential impact on carbon emissions prior to spend being authorised. Further work is planned specifically on updating procurement training and processes in order to address this.

4.3. Statutory, Legal and Risk Implications

- There are no significant implications within this category.

4.4. Equality and Diversity Implications

- There are no significant implications within this category.

4.5. Engagement and Communications Implications

- There are no significant implications within this category.

4.6. Localism and Local Member Involvement

A training session was held with members of this committee in August 2020.

4.7. Public Health Implications

- There are no significant implications within this category.

Have the resource implications been cleared by Finance? Yes

Name of Financial Officer: Sarah Heywood

Have the procurement/contractual/ Council Contract Procedure Rules implications been cleared by the LGSS Head of Procurement? Yes

Name of Officer: Gus de Silva

Has the impact on statutory, legal and risk implications been cleared by the Council's Monitoring Officer or LGSS Law? Yes. Name of Legal Officer: Fiona McMillan

Have the equality and diversity implications been cleared by your Service Contact? Yes
Name of Officer: Elsa Evans

Have any engagement and communication implications been cleared by Communications? Yes. Name of Officer: Simon Cobby

Have any localism and Local Member involvement issues been cleared by your Service Contact? Yes. Name of Officer: Emma Fitch

Have any Public Health implications been cleared by Public Health Yes. Name of Officer: Iain Green

5. Source documents and Location

UK Government consultation on the future of carbon pricing:

[Carbon Valuation consultation hyperlink](#)

Gold Standard carbon offsetting scheme:

[Gold Standard Offsetting scheme hyperlink](#)