

Net carbon gain

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Net gain is a compensation principle and as such a version of polluter pays. It applies to circumstances where a person or company proposes to do something, but where whatever it does results in harm (albeit not intentionally). The harm has to be more than offset, on the grounds that (i) there is no right to pollute or harm; and (ii) any compensation needs to allow for uncertainty about the size of the gains and for the possibility that the gains are not in fact delivered.

Though there is some room for debate about the extent of the overprovision of compensation relative to the mean expectations, net gain is just good economics, and good for economic efficiency. In a sustainable economy it would be a universal rule.

Carbon pricing and taxation is a compensation principle. Polluters buy carbon permits through the EU Emissions Trading Scheme (EU ETS) and now the UK Emissions Trading Scheme (UK ETS), and through any carbon tax mechanism to compensate for the emissions they expect to make. Companies aiming to be net zero buy carbon offsets to compensate for hard-to-abate emissions.

There are other ways in which compensation might be applied to carbon emissions, with similar effects. “Take-back” rules, applied to oil, gas and coal extraction, are an example. The carbon taken out of the ground must be put back. The “net gain” bit would mean that the carbon price in the EU ETS, UK ETS and carbon taxes should be slightly higher than the level considered compatible with the net zero targets.

As with so much of the carbon debates, the focus is on emissions. But this is only half the story: what matters is the carbon concentration in the atmosphere, and this is the outcome of the balance between emissions and natural sequestration by the oceans and the land, including in the soils and in trees and other vegetation. This is where the “Net Carbon Gain” principle should, I propose, come into serious play.

Lessons from Net Biodiversity Gain

To see how this might work, the place to start is with the net gain principle now being applied to new housing and other infrastructure developments. This is one dimension of environmental harm, called Net Biodiversity Gain. It is better than nothing, but way short of the wider Net Environmental Gain which the Natural Capital Committee recommended in its 25-Year Plan.

Net Biodiversity Gain has no explicit carbon remit and does not address all the other natural capitals. It can, and should, do both.

The interpretation of Net Biodiversity Gain has been left to DEFRA and to Natural England. Together they have come up with a very narrow, mechanical, qualitative and inadequate approach. It is not grounded in a good measure of biodiversity, and it may even result in net biodiversity loss. In order to have good biodiversity, there need to be good ecosystems. Biodiversity does not happen in discrete bits, as housing estates do.

Even in its narrow disaggregated and discrete units, biodiversity turns out to be greatest beneath our feet and, crucially, it is closely correlated with carbon. The more carbon there is in the soils, the more biodiversity. Look after the soils and the biodiversity comes with it. It is in trees too – a large, aged oak tree is a store of carbon, it sequestrates some carbon, and it is a hotbed of biodiversity.

It is therefore plausible to argue that Net Biodiversity Gain could entail Net Carbon Gain, and indeed Net Environmental Gain. Biodiversity is not limited to above-ground bats, bees, birds and newts, important though all of these are.

The Net Biodiversity Gain methodology used by DEFRA and Natural England has no sound scientific natural capital baselines, and the qualitative scoring is arguably arbitrary.

It follows that almost all current DEFRA and Natural England net gain biodiversity surveys and audits to establish the biodiversity loss and the compensation are flawed. They do not take proper account of biodiversity in the soils, and almost all developments on greenfield sites replace soils with concrete.

Net zero and Net Carbon Gain

There is a separate reason for going beyond the Net Biodiversity Gain principle and introducing a Net Carbon Gain requirement, in advance of moving to a more comprehensive Net Environmental Gain. The Climate Change Act, as amended to include the target of net zero by 2050, creates a legal framework within which planning authorities should operate. Many local authorities and national parks have adopted their own net zero targets. Consistent with the spirit of the Climate Change Act, all developments should first have to measure their full carbon consequences, and provide carbon compensation for the losses incurred through the building projects themselves, and the ongoing loss of the soils and vegetation, which limit future sequestration and the ongoing carbon emissions from the new buildings.

A carbon audit of a housing development will be very different as between green- and brownfield sites. It will be worse still on the Green Belt, because of the scope for Green Belt land to increase carbon sequestration through trees and the restoration of soils and biodiverse vegetation.

Failure to consider all the options

This illustrates a further problem with narrow Net Biodiversity Gain. It is presented as a choice between the status quo and the new development. Ignored completely are all the other options for the land, including enhancing its natural capital and carbon sequestration potential. The tragedy of the Green Belt is that so much of it is in

chemically-intensive and biodiversity-depleted farmed land with limited access. The Green Belt was meant to be the lungs of the cities and for the city dwellers to have easy access to the countryside. It has instead been widely allowed to deteriorate. This matters not only in itself, but also because Green Belt land is near to people, and hence has higher natural capital benefits – for mental and physical health, recreation, as well as to provide a haven for wildlife near to people.

Going forward

If we are serious about both the carbon and the biodiversity, the way forward is threefold:

- to measure biodiversity properly;
- to recognise the systemic nature of biodiversity - and hence establish its value within the context of the ecosystems; and
- to require net carbon gain.

These requirements can be met in a much more rigorous way by starting each assessment with a natural capital baseline, focused on carbon and biodiversity (though the other natural capitals should also be brought into a Net Environmental Gain). It would look hard at the soils, as well as the vegetation. The baseline establishes what is in place.

Second, a number of enhancement options should be set out, and the baseline re-run with each of these sequentially put in place. These describe and model what could be done with the specific piece of land, and especially in the context of the wider ecosystems in which it is set.

Third, these enhancements should be compared with the detrimental impacts of the development on biodiversity, carbon and the other natural capitals. Otherwise, for anyone seeking to profit from getting planning permission, there is an obvious incentive to trash the land first (including its carbon) to make sure there is little or no biodiversity to have to compensate for – or at least to do nothing in the interim to make it more biodiversity-rich.

Only then should compensation be established – against the economically most efficient option for the use of the land, not just its current use. This is the right economic approach, and the one that yields the greatest benefit for people, and hence the one that maximises sustainable economic growth.

It is also radical: imagine how much better our land would be, and how much greener and more prosperous. Imagine putting the houses in the right places – where they do least harm and where there are genuine Green Belts nearby so that the existing and new residents can benefit from the natural capital next to them. Imagine, too, how much more progress we would make towards net zero if the carbon lost from the soils and vegetation was taken properly into account and if carbon sequestration was taken every bit as seriously as carbon emissions.

Net Carbon Gain is a perfectly practical addition to make to the planning laws on the path to replacing Net Biodiversity Gain with Net Environmental Gain. It is also potentially enforceable now – because the carbon in the soils is a proxy for biodiversity. Not all biodiversity is visible to the eye.

Size-ism is not a criterion for evaluating biodiversity importance. Perhaps it is time for a legal challenge on the basis of failure to take proper account of carbon in the planning assessments of new developments, and, in particular, to mount a powerful case for protecting and enhancing the Green Belt? That really would be an example of the government sincerely pursuing the 25-Year Environment Plan and getting serious about taking advantage of the economic gains from incorporating natural capital into economic policy. An early case for the new Office for Environmental Protection to take up? And pressure on DEFRA and Natural England to measure biodiversity properly too?

[Net Zero: How we stop causing climate change](#)

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