

# SHROPSHIRE CLIMATE ACTION PARTNERSHIP

White Paper



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This White Paper does not claim to reflect the views of all our partners, members and supporters.

## "Carbon Offsetting" and its potential to help achieve Net Zero Carbon Shropshire

Achieving net-zero carbon across Shropshire by 2030 will require us to reduce our carbon emissions extremely rapidly AND to vastly increase the county's carbon sequestration capacity, enabling capture or "offsetting" of residual emissions.

We define "carbon offsetting" as engaging in or paying for activities that capture and store carbon or that reduce emissions in a different setting or location, in order to compensate for unavoidable carbon emissions that arise from your activity.

For example, if you purchase a flight ticket, you may be invited to pay extra for another organisation to capture carbon or reduce emissions.

In this paper, I discuss some issues related to carbon offsetting and provide a sense of scale for what this can achieve, which in turn will inform us further about what level of residual emissions is low enough that overall we achieve 'net zero' on our total carbon footprint by 2030. I then present some conclusions which are unfortunately stark and shocking in their implications, highlighting the emergency we face and the need for an emergency response on a wartime footing.

### The Opportunities with Carbon Offsetting

There are excellent opportunities in Shropshire right now for carbon capture to 'offset' residual emissions associated with essential activities (i.e. emissions which cannot yet be eliminated, but which are being rapidly reduced through strategic and timely action). We are blessed with excellent land assets, presenting attractive options for carbon capture through rewilding, woodland planting and increased sequestration of carbon in soils through changes to land management practices. If you are seeking carbon capture opportunities locally then please do get in touch with us.

Each of us in our business and personal lives is making decisions daily that affect our carbon footprints. SCAP recommends using a carbon footprint tool, setting your targets for net zero by 2030, and aiming to live within this linear decarbonising pathway budget. We all need to recognise this will involve massive and wholesale change to our current ways of doing things, but we have the solutions and can implement them in ways that allow us to live healthy and happy lives. In addition, we need to pay towards reliable and verified schemes, preferably within Shropshire, that will capture or reduce any excess emissions that go beyond our annual budget. Further guidance is available at <https://zerocarbonsdropshire.org/calculate-your-carbon-footprint/>

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There are some excellent initiatives in Shropshire that are already encouraging nature recovery and carbon capture. SCAP is advocating a 'Marches Forest' to double woodland cover in Shropshire by 2030. It is appropriate for rural counties such as Shropshire to be ambitious in this regard, making the most of our natural advantages and doing more than the UK's urban centres are able to do.

### **The problems with Carbon Offsetting**

Unfortunately whilst offsetting can achieve a lot and it is essential to do as much carbon capture as possible, there are also significant pitfalls to consider, including:

- 1 Those who purchase 'offsets' may consider that they no longer need to reduce their emissions, believing that they have cancelled them out, and therefore may continue with business as usual, with little or no incentive to take action to directly reduce their emissions. The reality is that 'offsetting' will not reduce emissions, and the problem remains. Offsetting needs to be seen as a last resort – to compensate for unavoidable emissions for essential activities, rather than giving us permission to postpone making the huge changes required for the transition to a net zero world. We need to take a linear reduction pathway to net zero by 2030 (at the latest) as the only way to solve the problem<sup>i</sup>.
- 2 There are many 'offsetting' schemes offered that do not achieve what they say they will. For example, to 'offset' a transatlantic flight with planting trees would allow a tonne of carbon emissions today, which would not be recouped for perhaps 20 or 30 years (if ever). This outcome is way beyond our 2030 target and far too late to prevent dangerous climate change. Even this is subject to the risk of forest fires, species dieback, flooding, illegal logging etc. even if the trees are planted in the first place in a suitable location and adequately managed. A 2017 study of offsets<sup>ii</sup> commissioned by the European Commission, found that 85 percent of 'offset' projects under the Kyoto Protocol's Clean Development Mechanism had failed to reduce emissions.
- 3 The 'offsetting' principle requires that the carbon capture is 'additive'. In other words, it must be an additional activity that would not take place without the 'offsetting' investment. The reality is that these schemes are needed already. Investment in protecting or developing woodland is essential in terms of maintaining and increasing carbon sequestration and biodiversity, but 'offsetting' cannot compensate for ongoing emissions and does not offer a net additional solution to our climate crisis.

### **A fundamental matter of scale**

The problems described above pale into insignificance compared to the enormous problem with offsetting capacity that we discovered during our investigations in putting together the "Zero Carbon Shropshire Plan" (ZCSP). In essence the problem is that the scale of offsetting needed vastly exceeds the scale of offsetting opportunities.

The staggering scale of global carbon emissions currently (almost 50 billion tonnes of CO<sub>2</sub> equivalent each year) means it is impossible to capture anything like the same scale.

Scientists have estimated that if humanity embarked today on implementing over the next 30 years the most ambitious upscaling and technology developments for every single one of the potential carbon capture and storage options so far identified, the global carbon capture achieved would still be less than a quarter of the ongoing emissions<sup>iii</sup>.

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Furthermore, 'offsetting' generally addresses current and future emissions, while ignoring past emissions which are already heating the atmosphere to dangerous levels.

To put this in the context of Shropshire is illuminating:

Currently, the carbon footprint of Shropshire is approximately 6 million tonnes of CO<sub>2</sub> equivalent each year.

One of the central carbon capture opportunities we have in Shropshire is for woodland planting. Our indicative calculations show that a single year of delay in implementing the ZCSP and in starting the rapid reductions in fossil fuel use which we need to achieve locally would mean we need to plant 400,000 acres of Shropshire forest to recapture these emissions by 2030.

This area is almost half of Shropshire. If we delay by two years, we would need to turn the whole of Shropshire into a forest to 'offset' our ongoing emissions. This task would be impossible. Clearly we need to massively reduce our fossil fuel use immediately.

The average Shropshire person has a carbon footprint of about 12 tonnes of CO<sub>2</sub> equivalent per year. It is useful to consider what proportion of this can realistically be 'offset' in Shropshire. Taking what would be the most amazing achievement of a 'Marches Forest', doubling woodland cover of Shropshire in a decade, this would (once the trees became established after 15 years) provide each person in Shropshire with about 0.4 tonnes of carbon dioxide equivalent annual capture capacity.

This means that 'offsetting' even on the massive scale of a Marches Forest would only deal with about 3% of the problem, leaving us with the remaining 97%. This 97% provides an indication of the proportion of our daily fossil fuel use that we need to stop over the next ten years.

In our first Zero Carbon Shropshire Plan published on 31 December 2020, we recommended actions that we estimate would remove about 70% of the carbon footprint, leaving us with about 4 tonnes of CO<sub>2</sub> equivalent per person still to tackle. Our working groups are working hard to identify further steps we can all take, but the truth is that even the changes we have identified already are so massive that we are struggling to work out how 500,000 people across Shropshire county can all collectively make these changes, let alone more, particularly when those further steps will be even harder.

Emergency action this year by central government (including a carbon tax) and clear messaging on the need for immediate reductions to fossil fuel use will be essential. Recognition that our carbon budget runs out in a few years, that 'offsetting' and carbon capture will not bridge the gap, and that the decarbonising goal for total footprint (not just territorial emissions) must be 2030, will all start to galvanise a national emergency response.

We need government to signal a shift away from 'business as usual', starting right away. It is essential that these changes happen before we get to the all important COP26 UN climate summit later this year. SCAP will be there to help highlight the challenges, and also to speak up for the positive steps we can and are already taking.

I am sure I am not the first to say that climate change is the biggest challenge the human race has ever faced, but it is also important to remember, as Mark Carney, previous governor of the Bank of England says, that we do have the solutions and working together on sustainability represents *'the biggest commercial opportunity of our time'*<sup>iv</sup>.

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### **What might qualify for offsetting in a hierarchy of needs?**

I suggest it is helpful to consider a 'hierarchy of needs' when looking at offsetting and carbon choices: Clearly we must put basic human needs such as food above less essential activities such as flying for a holiday or buying a new car.

Considering our diet, we see that a typical meat-eating Shropshire person has a carbon footprint of about 3.5 tonnes CO<sub>2</sub> equivalent, and this could reduce to about 1.5 tonnes CO<sub>2</sub> equivalent by shifting to a plant-based diet, which would require over half an acre of woodland to capture. At this lower rate of emissions we would still require over 2 'Marches Forests' to just capture emissions related to our diets.

### **Exporting our carbon capture?**

The 'offsetting' industry frequently offers opportunities in other parts of the world, and it may be tempting to consider that this approach will solve our problem. However, think about this 'carbon colonialism' for a moment. Such a 'solution' assumes the country involved has spare 'offsetting' capacity. This cannot be the case because carbon emissions are a global problem, and under the Paris Agreement they will be relying on their own territories to offer their own 'Nationally Determined Contributions', which collectively are falling far short of what is needed'.

As David Attenborough puts it so well:

*"Human beings have overrun the world."*

There is no place left for a magic carbon tree on the other side of the world, and collectively all of humanity is now embarked on a race for survival, the success of which will be determined by the rate at which we stop burning fossil fuels. To try and ringfence part of that race and call it 'offsetting' is immaterial.

From what we eat to what infrastructure we develop and where we go for our holidays, all our activities lead to emissions. We must be selective and choose only those activities which have very low emissions in line with our carbon budget, which will run out within a few years. At the same time, we must embark immediately on all carbon capture projects that we can find so that these are all operational by 2030. We know that even after pursuing them all, we will still be a long way short of recapturing our excess emissions over the coming years. Relying on offsetting and marginal shifts in behaviour on a pathway to 2050 will lead to catastrophic and dangerous climate change.

### **Conclusions**

The facts are:

1. It costs considerably more to try and capture carbon than it costs to avoid emitting it in the first place.
2. Offsetting capacity is far less than our current or likely reduced emissions so it is vital to consider the most essential activities first in terms of setting any realistic carbon budget.
3. The world has limited offsetting and carbon capture capacity, and we urgently need to implement all of these offsetting and carbon capture activities right away. Once the cheaper opportunities are taken up, the marginal costs for future offsetting will escalate.

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4. There is insufficient offsetting capacity available for even the most fundamental stuff of life, so it must be recognised that none of our less essential activities can be 'offset' and our efforts must be directed to avoiding them and replacing them with sustainable zero carbon activities. The earth does not have the capacity for any such additional polluting activity to be offset.
5. Offsetting is a mirage that double counts projects to which each country is already committed under the Paris Agreement.

It is vital that we recognise the natural system limits of our planet and redesign our lives accordingly. Because of this reality of scale we can recognise that the whole world could become a forest, and we will still have climate meltdown.

To share my perspective as a geologist: globally we are currently burning of the order of a million years worth of fossil fuel deposits every year. When considered in these terms it is perhaps easier to understand how far we are from a sustainable balance, and the need to invoke a wartime-like mobilisation across all walks of life to stop burning fossil fuels this year and over the rest of this decade. Every day we delay this mobilisation damages our prospects further. The consequences of failure are dire, but the consequences of success will be a virtuous circle of improving environment, prosperity, health and sustainability.

I hope that this white paper encourages recognition that every action and investment we can make in the recovery of nature, carbon capture, and reduction in emissions, ideally directed through local action in Shropshire, offers a brilliant and essential opportunity to improve our county. It will promote biodiversity, reduce carbon emissions and help us achieve a sustainable county.

Choice of actions needs careful planning because feedback from carbon capture projects has shown that many do not achieve their objectives<sup>vi</sup>. The most vital thing is to stop carbon emissions from getting into the atmosphere in the first place.

You will gather from the above that while we see tree-planting and nature recovery projects as essential for protection of biodiversity and for carbon capture, we believe the primary challenge facing us is to act with immediacy and scale to stop burning fossil fuels.

At SCAP, we are doing everything we can do to help. We have roles for specialists, generalists and simply anyone who wants to help, whether planting trees or running social media campaigns. Please join us [www.ZeroCarbonShropshire.org/join-us](http://www.ZeroCarbonShropshire.org/join-us)

Mark Fermor 28 March 2021

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<sup>i</sup> <https://zerocarbonshropshire.org/wp-content/uploads/Zero-Carbon-Shropshire-Plan.pdf>

<sup>ii</sup> <https://www.transportenvironment.org/press/eu-publishes-damning-report-emissions-offsets-calling-question-eu%E2%80%99s-aviation-climate-strategy>

<sup>iii</sup> <https://energypost.eu/10-carbon-capture-methods-compared-costs-scalability-permanence-cleaness/>

<sup>iv</sup> [https://downloads.bbc.co.uk/radio4/reith2020/Reith\\_2020\\_Lecture\\_4\\_transcript.pdf](https://downloads.bbc.co.uk/radio4/reith2020/Reith_2020_Lecture_4_transcript.pdf)

<sup>v</sup> <https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/nationally-determined-contributions-ndcs/ndc-synthesis-report#eq-5>

<sup>vi</sup> <https://www.greenpeace.org.uk/news/the-biggest-problem-with-carbon-offsetting-is-that-it-doesnt-really-work/#:~:text=Updates-,The%20biggest%20problem%20with%20carbon%20offsetting%20is%20that%20it%20doesn,atmosphere%20in%20the%20first%20place.>