Lake District Carbon Budget: Progress update to April 2018

August 2018

Contents

1.1 Document control

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2 Introduction

The Lake District National Park Partnership is committed to leading the way on climate change, and was one of the first local areas to set itself a carbon budget, as part of its Low-carbon Lake District initiative. A carbon footprint analysis was initially carried out in 2010, and this was used as a baseline against which to measure progress against a target of an additional 1% reduction per year from local actions, i.e. 7% reduction by 2017 compared to the baseline. Each year, Small World Consulting has undertaken an audit of projects which aim to reduce carbon within the National Park, to assess carbon savings. Between 2010 and 2017 the cumulative carbon savings, due to actions taken by partners, were 343,000tCO2e. In 2017 savings from local actions were estimated to be 4.1% of baseline emissions, against the 7% target.

Things have changed a lot since 2010, so in 2017 it was agreed that we should calculate a new baseline, using a new methodology, against which to measure progress from 2017 onwards. This report, together with the methodology, is available at http://www.lakedistrict.gov.uk/caringfor/lake-district-national-park-partnership/carbonbudget. The total Re-baseline emissions are 3,137,000tCO2e.

As before, we aim to reduce the emission of carbon dioxide and other greenhouse gases, measured on a consumption basis, by 1% per year.

3 Methodology

Until 2017, the annual carbon budget updates were calculated using a 'bottom-up' approach - listing actions taken by Partners and assessing their impact. This had the benefit of highlighting the impact of local actions but has proved laborious. The Partnership agreed that from 2017 we would use a 'top-down' approach in some areas, using national datasets to monitor annual changes in the following areas, which together account for a significant proportion of the total footprint:

1. Road transport emissions; and
2. Domestic electricity and gas consumption.

For these two areas we continue to use the Defra emission factor (EF) for the Re-baseline year. This is to ensure that we do not include in our calculations the impacts of decarbonisation (or otherwise) of the national fuel mix from year to year, and instead capture only the emissions changes associated with actual changes in behaviour locally.

We also continue quantifying local actions where data are readily available and where the impacts are thought to be significant (e.g. in the case of renewable energy installations, positive changes in land management and public sector actions to reduce emissions). From this year onwards, however, where quantitative data are not readily available we have focused on narrative descriptions. This year we have also developed case studies, in the form of slides, highlighting some of the positive actions that have been taken over the last year.

3.1 Travel

We used traffic flow data from 14 sites within the Lake District National Park that are monitored by Cumbria County Council as the basis for calculating changes in travel emissions between 2016 and 2017 (i.e. the reporting years 2016/2017 and 2017/2018, respectively). The calculations include only non-HGVs in an attempt to capture only the travel undertaken by visitors and residents, rather than industry. Total average daily vehicle movements (excluding HGVs) for each month, for each travel point, were calculated for both 2016 and 2017. We used the difference between the two years as a ratio which, applied to the baseline 'vehicle

fuel and car' emissions, allowed us to extrapolate 2017 'vehicle fuel and car' emissions, and therefore calculate the change in emissions between 2016 and 2017.

Note that where data were missing for any month in either year, we removed the data for both years in order not to skew the results by differences in traffic flow for different months (for example, if one travel point had data missing for July and August 2016, we also removed the data for July and August 2017).

3.2 Home Energy

We calculated home energy emissions using the same methodology as we used for the 2017 Re-baseline; electricity and domestic fuel consumption data were taken from the ONS, broken down by Middle Super Output Areas (MSOA)[1], and the population data were taken from the 2011 census, adjusted for the LDNP. Defra doesn't release electricity and domestic fuel consumption data until the following winter, so the data used for the Re-baseline were from 2015, not 2016. Equally, the data used for this update are from 2016, not 2017.

Note that since the 2017 Re-baseline was calculated, Defra has retrospectively adjusted the 2015 data. In our update calculations we have therefore used the adjusted (actual) figures as the baseline against which to calculate change.

3.3 Renewable energy & land management

The Lake District National Park Authority provided the total figure for emissions reductions associated with renewable energy installations and positive land management actions.

3.4 Public Sector

Emissions savings from the public sector include operational savings from the LDNPA and SLDC (scaled down proportionately for the LDNP area/population) and waste reduction measures (i.e. avoidance of landfill) implemented by SLDC. Again, these figures were provided by the respective organisations.

4 Findings

The total emissions reduction for the 2017/2018 reporting period has been **14,123tCO2e**, as shown in Figure 1, below.

The breakdown of savings is as follows:

- Land management: 1,777tCO2e;
- Travel: 4,947tCO2e;
- Home energy: 3,550tCO2e;
- Renewable energy: 2,286tCO2e; and
- Public Sector: 1,563tCO2e.

[1] https://www.gov.uk/government/statistics/lower-and-middle-super-output-areas-electricity-consumption

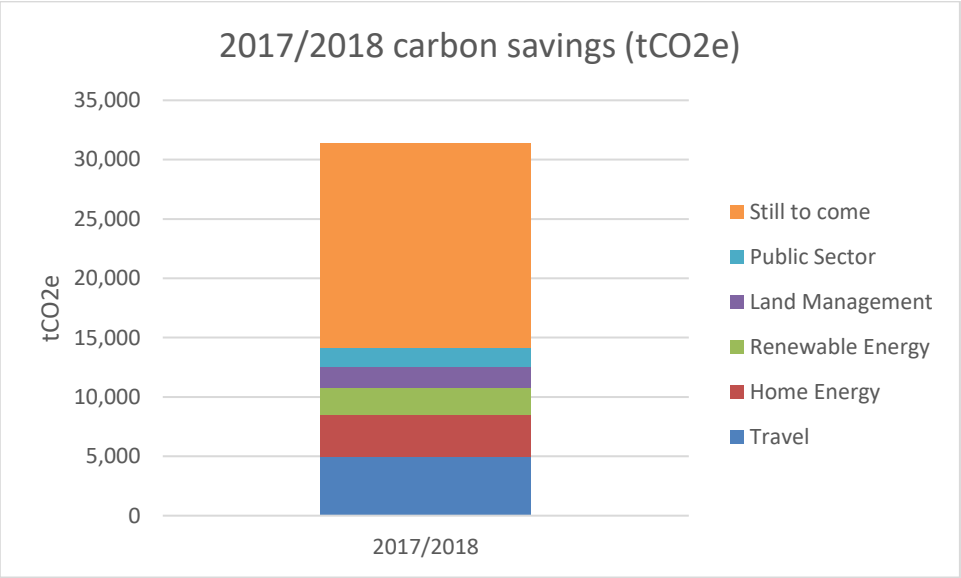

Figure 1: 2017/2018 carbon savings

4.1 Travel

Emissions savings from travel are **4,947tCO2e**, which represent approximately 35% of total savings.

There are several local actions that may have contributed to this reduction, including:

- Participation in British Cycling's recreational cycling programmes: HSBC UK Guided Rides, HSBC UK Breeze and HSBC UK Ride Social. There have been 1,236 participants, 96 new commuters and carbon savings of 9tC02e;
- LDNPA staff ran a 'Lake District Car-Free Day' on 22 September 2017, aimed primarily at Authority and Partnership staff, saving nearly 400 car miles equivalent and 119kgCO2e. LDNPA wants to explore running a larger scale event in 2018; and
- £1917.50 was awarded to the Ullswater Way Project (LDNPA) which aims to maintain and repair a complete path network around Ullswater. During the reporting period, 390m² length of path has been repaired and the soil stabilised. This allows sustainable travel around the lake without a car.

4.2 Home Energy

Emissions savings from home energy are **3,550tCO2e** – 25% of the total. This reduction results from a reduction in gas consumption that equates to a saving of 3,582.32tCO2e. Electricity consumption has increased marginally, generating an increase of 32.41tCO2e.

Cumbria Action for Sustainability (CAfS), one of the LDNP Partners, has carried out a number of initiatives to reduce home energy use across Cumbria. These are highlighted as a Case Study, and include the following:

- Energy Saving at Home Advice Programme: energy audit of 25 homes in the LDNP followed by installation of draught stripping, LED lighting and chimney sheep (where applicable) and advice on energy management (i.e. lowering thermostat). Estimated carbon savings of 0.5tCO2e per household per year;

- Domestic Energy Audits: in-depth approach to 'significant' domestic refurbishment projects in 12 households, often involving £1000s and £10,000s, leading to long term energy savings. Estimated carbon savings of 2- to 5tCO2e per household per year;
- Low Carbon Retrofitting Workshops: training of 30 building professionals – architects, builders, planners, etc. – on thermal efficiency, airtightness, sustainable materials and renewable energy systems for domestic refurbishments. Helping the construction industry (and their clients) to upskill and better understand the benefits and impact that well thought-out sustainable refurbishment could have on carbon savings (though these savings haven't been quantified); and
- Green Build Festival: week-long series of 'open door' events looking at in situ renewable energy, energy efficient refurbishment, sustainable build, etc. A total of 630 people attended the events, which helped to raise awareness of the potential for energy saving in buildings. Following the festival many people contacted CAfS thanking them for changing their whole approach to renovation and renewables.

4.3 Renewable energy

Emissions savings from renewable energy are **2,286tCO2e**, representing approximately 16% of the total.

Actions taken across the park in relation to renewable energy include:

- National Trust: Hause Gill Hydro, Borrowdale. 100kW scheme delivering around 400,000 KWh/yr;
- National Trust: Fell Foot Heat Pump for new visitor & boating centre;
- CAfS: Green Build Festival (see Section 3.2 above for description);
- CAfS: Community Energy Support (renewable energy). Five communities were supported with advice and feasibility studies to develop their own renewable energy system. No installs in 2017/18 but potential in 2018 /2019; and
- LDNPA: Local Plan Review. Efforts to increase the uptake of renewable energy are also highlighted in both the CAfS and Sticklebarn Case Studies, attached in Appendix 1.

4.4 Land management

Land management actions account for **1,777tCO2e**, or 13% of the total – and are broken down as follows:

- Hay meadow restoration: 14tCO2e;
- Peatland restoration: 833tCO2e;
- Scrub creation: 147tCO2e; and
- Woodland creation: 784tCO2e.

The Cumbria Wildlife Trust peatland restoration Case Study in particular focuses on carbon savings. Nine peatland sites, with a total area of 2055ha, have been restored since 2011/2012. Three of these – Mardale Common, Scales Farm and Matterdale Common – were restored during 2017/2018. The carbon saving from the three sites is 833tCO2e for the 2017/2018 year. The total cumulative savings for all nine sites since 2011/2012 are nearly 40,000tCO2e, with some sites having contributed savings for longer than others, depending on when they were restored. The total cumulative carbon savings for 2017/2018 from all the sites is 9344tCO2e.

4.5 Public Sector

Emissions savings from the Public Sector are **1,563tCO2e**, which represent approximately 11% of total savings. This is broken down as follows:

- LDNPA operational savings: 8tCO2e (this represents new savings; previous savings have been 39% since 2007/2008);
- SLDC operational savings (scaled down proportionately for the LDNP area/population): 235tCO2e; and
- SLDC savings from diversion of waste from landfill: 1,320tCO2e.

The SLDC Case Study describes some of the measures it has taken to reduce emissions from waste. These include:

- Expanded rollout of kerbside recycling: SLDC bought two of the smallest possible recycling collection vehicles to increase the number of properties receiving kerbside service to >99%. Recycling rates have increased from 42.4% to 44.4% (by weight) during the reporting year.
- Bulky waste recycling: SLDC has a contract with Right2Work – a Community Interest Company – to collect bulky waste from households to be recycled or repaired, where necessary, and/or sold in their shop. Right2Work provides employment and training opportunities for people with learning disabilities and mental health conditions. They recycle or re-use 70% of what they collect and last year diverted over 120 tonnes away from landfill. The carbon savings have not been calculated.

4.6 Accommodation, food & Drink

We have not quantified carbon emissions savings from this sector because the data aren't readily available. However, the Sticklebarn pub is an example of a business working hard to reduce its emissions, and is included as a Case Study. The measures it has taken include:

- Offering a limited range of meals to reduce the number of fresh items that need to be stocked. Perishable items are used in multiple dishes e.g. celeriac might be included in 3 dishes so that if people are buying a salad featuring celeriac rather than a hot dish the vegetable is still used up;
- Careful management of stock, particularly perishables, to avoid waste, and the use of promotions where necessary;
- Monitoring of trends (what people buy and when). By looking at weather trends and what has sold well historically the pub can gauge what is likely to sell on a given day;
- Assessment, over a number of years, of the best portion size to prevent wastage;
- Offering a seasonal menu to reduce the carbon footprint/food miles;
- Monitoring of food waste over 12 months to enable the pub to plan the best disposal method (e.g. on-site composting or off-site anaerobic digestion);
- Reduction of milk waste by not providing 'chuggers'/jugs for milk that often ends in waste;
- Calculation of the carbon footprint of menu items. The vast majority of lunchtime dishes are below 1kgCO2e, while evening meals are generally just over 2kgCO2e. Meat and dairy products are marked on the menu as having a higher carbon footprint so customers can make an informed choice. There is a good variety of vegetarian and vegan options, as well as poultry/pork, which means there are plenty of appealing low carbon options;
- Providing typically low-carbon meals in the National Trust cookbook and the Sticklebarn food offer;
- Replacement of the 'ancient' beer cellar chillers with new, energy efficient models and introducing plastic partitions in the cellar so that a smaller volume of air needs to be chilled;
- Use of LEDs for external lights and review of a design for internal LED lights; and
- Provision of over 50% of the pub's electricity in the last year from on-site renewable hydropower.

4.7 Re-use, repair and recycling

As well as SLDC's bulky waste recycling scheme described in Section 4.5 above, LDNPA has led a project to increase the recycling of farm plastic waste. In 2017 farmers took part in a collection at Troutbeck, resulting in the recycling of thousands of tonnes of plastic bale wrap, silage sheets, string and lick buckets. The carbon impacts have not been quantified. Matterdale farmer, Mark Potter, said "It allows us to have a good tidy up around our farms after the winter and get the stuff away. There is nothing worse than seeing plastic bale wrap hanging in trees and blocking watercourses. We pay a small charge, but recycling plastic is an obligation of our farm assurance scheme and this helps us meet our requirements. It is a win/win for us."

4.8 Other

CAfS hosted four film nights at the Brewery Arts Centre in Kendal; Climate change related films were screened every 3 months, with regular audiences of 150-250. The carbon impacts have not been quantified.

5 Progress against target

Figure 1 above shows that the 1% emissions reduction target of 31,367tCO2e for 2017/2018 has not been met. The actual total emissions reduction for this period has been 14,123tCO2e.

We estimate that annual emissions in the LDNP are 4.55% lower, as a result of local actions since 2010. This compares to a target of 8% annual reduction.

Figure 2 shows cumulative progress against the target, and includes previous years' savings (i.e. those made before the 2017 Re-baseline) as a percentage of the target. The blue line shows the target of 1% savings per year, rising to 8% in 2017/2018. The red line shows the actual annual savings, with the dotted section as a projection for future years.

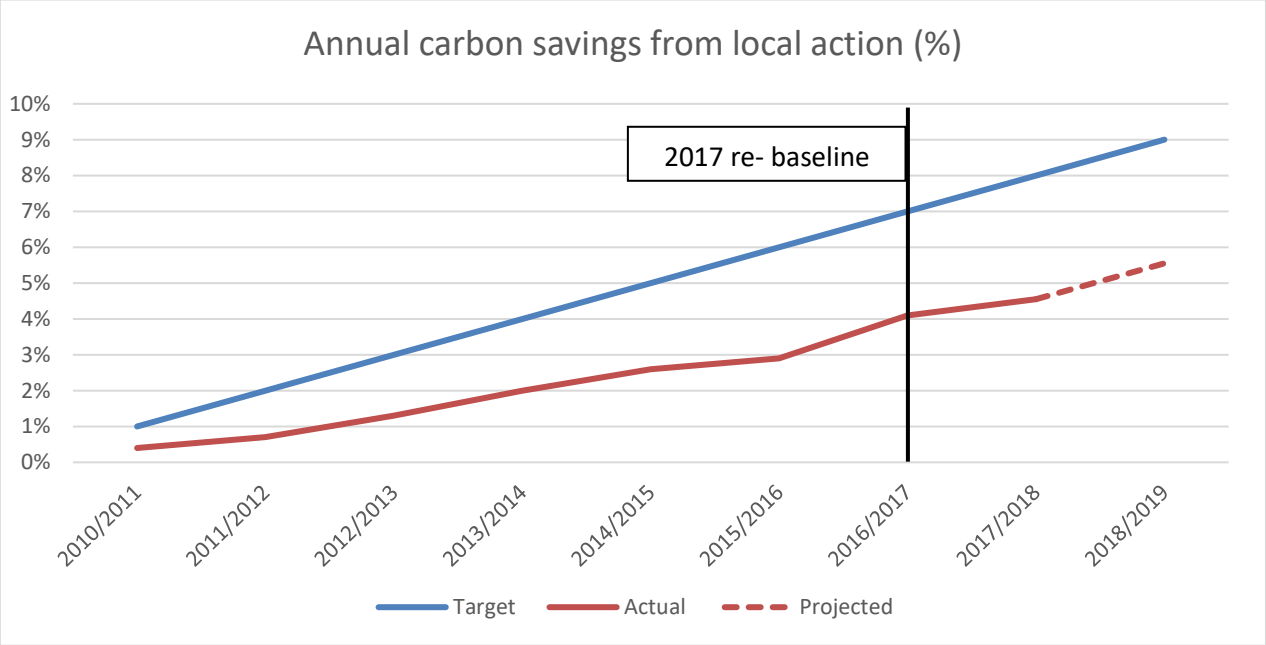

Figure 2: Cumulative carbon savings (as a percentage of the baseline), including those made before the 2017 Re-baseline