Buxton Economic Resilience Study 2014

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Buxton Economic Resilience Study December 2014

Prepared on behalf of Transition Buxton,

By Peter Milway, Alan Budge, Jean Ball and Janet Miller

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1. FORWORD

Resilience is arguably an under-rated virtue and a trait which most of us do not recognise fully in ourselves or in the communities we are part of. Yet as this important study recognises, resilience is at the heart of the economic, cultural, social and eco-system which is Buxton, as much as it is part of each of our citizens. On reflection when I watch and celebrate our graduates and award winners cross the stage at our award and graduation ceremonies I am also witnessing and celebrating the terrific resilience, in all its brilliant diversity and vitality, which marks the development of new learners and practitioners. As human beings inexorably connected to the world around us we are all learning all the time however – formal education and training helps us understand and reflect on that learning and to take it to new heights of achievement and impact – and so too does this study of the resilience and ongoing learning and development of Buxton as a town and a community.

The Buxton Economic Resilience Study shines a powerful light on the resilience and potential that is embodied in the people, communities, businesses and environments which make up this amazing place in which I am privileged to live and work. Understanding a community – in all its complexity and variety – is a lifelong journey of discovery – like learning itself it is never ending. Communities, towns, villages, cities are evolving systems marked by an intricate and often unobserved set of inter-related connections. It is the knowledge of not just who you know but what you do and the impact of what you do on others which marks out a community that is reflective and learning – a community which is truly diverse in embracing all who make it up and make it happen.

This study can, at times, prove uncomfortable reading – it poses the key challenges of our time concerning economic development and environmental sustainability. It sets out with welcome lucid clarity what resilience means for Buxton and how we can, if we learn together, not only meet but transcend the challenges that face us. Resilience is a powerful way to chart our future direction as a diverse community of individuals, families, organisations and organisms.

The University of Derby and Buxton and Leek College are an integral part of our community and we are humbled by what we can achieve for our students and what we can achieve in partnerships with others. Like all of us we are nothing without our relationships – we are the sum of our creative partnerships and their impact. Here in Buxton we are spoilt for choice and I am struck daily by the enticing and beguiling complexity of this high(est) market town with a natural spring, the highest unsupported Dome in Europe, the oldest hotel, an Opera House and Festival like no other, brilliant schools and a vibrant range of community organisations. I am speaking of course of the resilience which embodies us all and which dynamically charts a course for the development of our town and its communities. This study is a valuable contribution and insight into how we need to develop our resilience further – together and as active participants in the communities which make up Buxton, daily learning and developing and recognising the capacity for increased resilience in us all.

Professor Rod Dubrow-Marshall PhD, MBPsS
Deputy Vice-Chancellor
The University of Derby

2. EXECUTIVE SUMMARY

Buxton, as anyone familiar with the town knows, has a lot to recommend it: at the heart of the Peak District, with a healthy tourist trade, exceptional architecture, and great community spirit.

We do, though, live in fast-changing and uncertain times: Buxton is feeling the effects of economic and environmental change, along with the rest of the world. The world's population continues to grow by over 75 million people (1.14%) a year, and has grown from 1 billion in 1800 to 7 billion in just over 200 years.

In England, population growth is predicted to continue at around 300,000 – 400,000 per annum[1]. In 2011, population in the High Peak was forecast to increase by 10,000 people or 7,000 households by 2031[2], with more recent predictions[3] forecasting High Peak resident numbers will increase by a more modest 7.5%, or just under 7,000 people (from 91,000 to 98,000) by the same date. Whatever figures prove to be accurate, we know we need to plan for more people.

Natural resources like oil, gas, land, and water cannot increase to keep up with consumption, and inevitably the price will increase (despite short term peaks and troughs), so how will we deal with increasing demand for decreasing or finite resources? The Transition movement is based on the principle that, as communities large and small, we need to prepare for and make the transition to a more sustainable economy, including reducing our consumption of finite resources such as fossil fuels. This report aims to pull together a clear picture of Buxton's existing economic resilience and potential future opportunities.

This approach is now moving from the margins to the mainstream, as evidenced by:

- the Government's recently published Community Energy Strategy, one of the main aims of which is to *'Increase the proportion of home-grown low-carbon generation, while using less through an energy efficiency revolution'*.[4]
- the emerging D2N2 Local Enterprise Partnership low carbon strategy, which states ***"The significance of climate change and the low carbon economy is also likely to present commercial opportunities for the entire D2N2 business base either through the development and provision of low carbon goods and services, including low carbon housing and retrofit or through savings in areas such as energy or waste reduction, providing a market for local low carbon economy businesses. "***

[1] http://ons.gov.uk/ons/rel/snpp/sub-national-population-projections/2012-based-projections/stb-2012-based-snpp.html

[2] see Derbyshire Population & Household Forecast Guide, February 2011

[3] See table 2.2 http://highpeak.objective.co.uk/file/3110855

[4] Dept of Energy and Climate Change . 2014 https://www.gov.uk/government/publications/community-energy-strategy

One of the first steps in making this transition is to measure and test the resilience of our existing local economic structures, so that we can identify opportunities to increase our resilience.

What is resilience?

This report identifies a multi-million pound opportunity to create new jobs, grow new enterprises and help existing businesses to thrive.

Resilience is about our ability to withstand and adapt to shock and change – what former Crystal Palace manager, Iain Dowie, once called *"bouncebackability"*.
Resilience, like happiness, emerges from a combination of things, in this case diversity, overlap, modularity, social capital, innovation, feedback, and valuing ecosystem services. We suggest this is what we need to build into our local economic system.

Through increasing self-reliance we can build strength and resilience into our community as well as our economy. The idea is not to 'pull up the drawbridge' and become a closed economy, but rather to work towards a gradual re-balancing of the economy, to create a 'virtuous circle', where local businesses can thrive, with the willing support of the local community, which in turn will provide more local employment, resources to improve local infrastructure, and so on.

In compiling the evidence base we have drawn on a range of data sources; we are grateful to the many local and national organisations who gave us access to their data, and also to the local businesses, visitors and residents who took part in our survey work.

The analysis looked initially at Buxton's economy as a whole. It then focused on two key sectors - food and energy - to build a picture of what each sector could be worth to our town's economy, if we develop more demand for local products and services, delivered by local independent businesses and using a supply chain closer to home.

Initial findings indicate that:

- Buxton households spend over £30m each year on food and drink, but only 1% of this is spent in local independent shops. Just a **10% increase in local food sourcing** would result in an increase of over **£800,000** flowing into the local economy per annum.

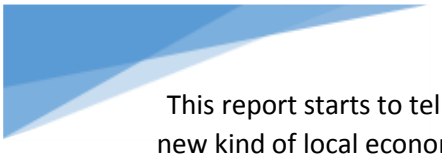
- Buxton households spend around £12m each year on energy in their homes. Investing in improving the energy efficiency of **just 1% of the domestic buildings** in the town each year would result in an **increase of £300,000 flowing into the local economy** annually and would also reduce our energy needs by around £60,000 per annum.

- The **introduction of renewable energy generation into just 35 houses in Buxton each year** would contribute a **further £250,000 to local businesses per annum** and benefit householders through savings and income by £65,000 a year. In addition a community renewable energy hydro project could generate £35,000 p.a. through the feed-in-tariff and generate enough electricity for 50 homes.

Together these three achievable changes could see an increase in local employment, economic stability, and satisfaction upon which further positive change can be built. This report starts to tell the story of a new kind of local economy, one based around people, their wellbeing, and their livelihoods, and which also respects resource limits. We hope it usefully contributes to the strategic decisions and economic plans being made for our town and county, and we look forward to working with local organisations to grasp and develop the opportunities to turn this story into reality.

What we set out to achieve through this study

The Buxton Economic Resilience Study is one of eight projects across Europe in 2014, building on the work done in four UK Transition areas in 2013. This work has been undertaken to see what could be done to help build the resilience of our town, and improve all of our wellbeing, by making changes to our local economic priorities and activities.



This report starts to tell the story of a new kind of local economy, one based around people, their wellbeing, and their livelihoods, and which also respects resource limits.

An economy on any scale is not simple. Every one of us impacts and is impacted by the global, national and local economy with every business, policy and spending decision we make. Our aim is to:

- help to inform those decisions by providing evidence and data
- encourage new thinking about the interdependence of economic and environmental sustainability
- empower local government, businesses, institutions and individuals to build resilience
- improve and sustain a quality of life in Buxton that respects people and planet
- make the case for collaborative and partnership cross sector working

A genuine opportunity to create a resilient local economy:

This report identifies opportunities to create new jobs, grow new enterprises, help existing businesses to thrive and benefit the local economy by over £1.2 million pounds a year. Through people-based, community-led, genuinely sustainable economic development, new livelihoods can be created. At the same time, this approach can help ensure we can feed ourselves, minimise our fuel bills and carbon emissions, and develop a real sense of community empowerment over local economic conditions. This work aims to bring together a coalition of local stakeholder organisations, anchored here in our community, to develop an economic approach designed specifically for Buxton and the High Peak, and show the value and importance of uniting to deliver real change.

3. BACKGROUND TO THIS PROJECT

The Transition Movement

The word 'transition' denotes the shift from a resource intensive economy to a more sustainable, locally-based model. The Transition Network of which Transition Buxton is an active participant, came into being a decade ago as a response to the twin challenges of climate change and concerns about 'peak oil[5]'. The Transition movement has grown nationally and internationally to include examples of the introduction of local currencies, reclamation of public spaces for food growing, appliance and tool libraries, support for local entrepreneurs, and much more (see www.transitionnetworks.org.uk for more detail).

The beauty of the Transition approach from the point of view of people who are concerned about the environment is that it offers the opportunity to engage with positive change, rather than 'negative' campaigning, or more commonly, a retreat into worried inertia. In Buxton, Transition activities so far have included: workshops on energy saving recycling/repairing, and on growing and cooking your own food; planting a 'dispersed' community orchard; clearing disused allotments ready for use; the Serpentine Nursery project (see more on page 29); informative and entertaining films, talks and mini-festivals; seminars (The Buxton-Matlock Rail Inquiry and the Local Economics Seminar); children's make and do sessions using 'waste' materials; a shadow puppet play in partnership with local group Funny Wonders, and more.

Why buying locally matters

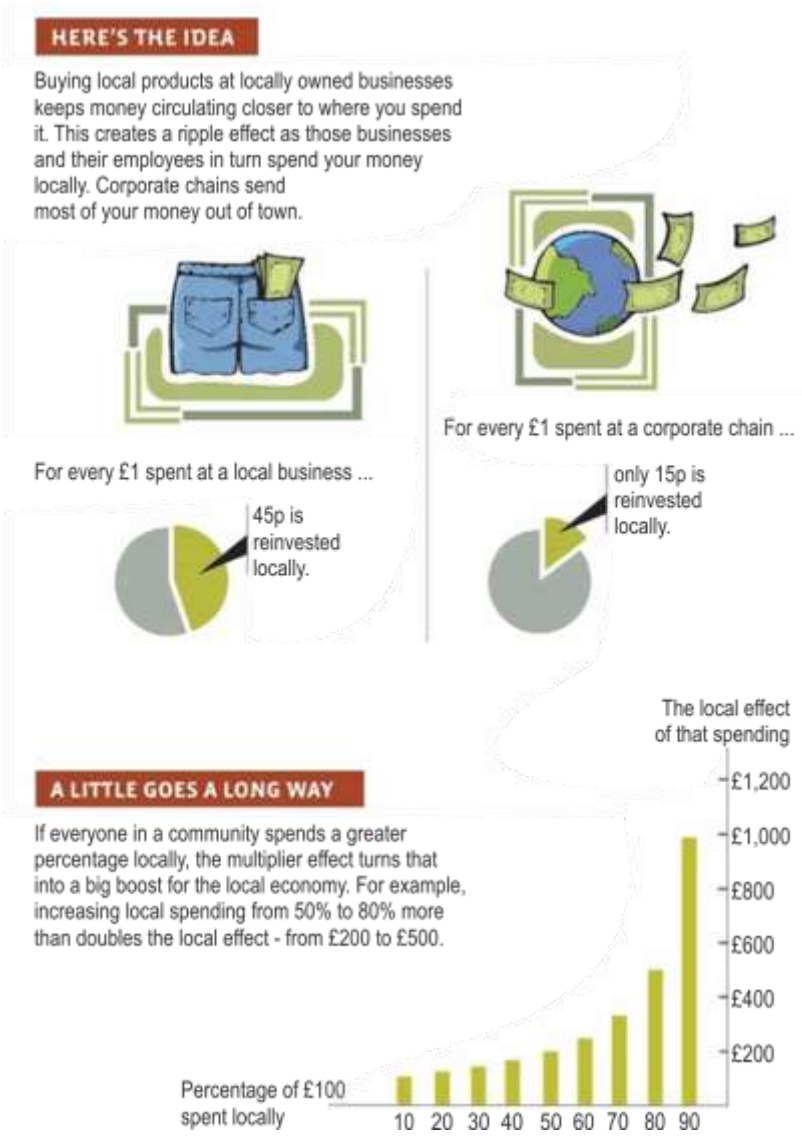
We know that money spent with local independent shops and businesses has greater local benefit than the same amount of money spent with chain stores and corporations. This is due to the 'local multiplier' effect.

Most money spent with local businesses typically gets re-spent in the local economy, not just on wages and local suppliers, but also on services like accountants, marketing, printing, insurance, distribution, cleaning and so on. However, large chains tend to only re-spend locally on wages, as they generally have central contracts with national suppliers and service providers that can meet their needs at the required scale. Recent exposure of the tax avoidance strategies of many large companies has also highlighted the additional societal costs of some corporate models. The trend towards internet sales, via large clearing houses like Amazon, is also significant, as these generally exclude local businesses entirely, not even providing local wage inflows. In addition, the use of distant, centralised depots results in increased 'product miles' with the associated environmental impact of long haulage chains.

[5] the point at which our oil-based economy becomes uneconomic, i.e. as easily accessible oil resources are depleted, the costs of extracting oil become both environmentally and financially prohibitive.

Some smaller retailers do sell via the big clearing houses but the proportion is small and the most canny selling on line tend to do so direct rather than via a corporate 'middle man'.

Let's take food as an example. Using data from The New Economics Foundation (NEF)[6], the Campaign to Protect Rural England (CPRE) suggests that **spending £10 in a local food outlet is actually worth £25 to the local economy**, as it gets re-spent locally several times (£10 + £15 based on a local multiplier of 2.5). The multiplier is based on assumptions that typically a percentage of money is re-spent locally – a multiplier of 2.5 is achieved with 60% re-spent locally, 72% re-spent equates to a multiplier of 3.5, if 80% it's 5, 20% it's just 1.25. NEF also report that local food shops can employ 3 times as many people for the same amount of turnover as, for example, a large supermarket. So that's why, if our aim is to strengthen our local economy, it's just as important to look at where money is being spent, as well as where the goods come from.



Spending money in local independent shops and businesses creates more jobs and strengthens our local economic system overall. When that money is also spent on locally produced products then the benefits are even greater, as show in figure 1.

[6] http://b.3cdn.net/nefoundation/7c0985cd522f66fb75_o0m6boezu.pdf

	Bought from chains	Bought from local stores
Locally sourced products	*Good for local farmers, producers, growers and processors (suppliers)* *Helps keep local suppliers in business plus other env-social benefits and local multiplier effect applies*	*Good for local suppliers and local outlets* *Maximum local multiplier – keeps most £ circulating locally, provides most jobs, optimum env-social benefits*
Products from other places	*Good for others somewhere else* *Pays some local wages*	*Good for our local outlets and retailers* *Provides more jobs for local people per £ spent*

Figure 1 shows who benefits from the four possible combinations of sourcing locally or non-locally, and spending locally and non-locally. Clearly, the most benefits for our local economy are in the top right quadrant.

We are not suggesting that 100% of our requirements should or could be met locally. There has always been trade across the region, country and the globe, and always will be, though this is expected to contract for physical goods as over the medium term fuel prices continue to push up the cost of transport (despite short term peaks and troughs).

Some people might see this approach as protectionism, the opposite of free trade. We argue that we are most interested in the best outcomes for the residents of our town / district, and that we are looking to stop the leakage of money that could be retained longer in our own economy, providing jobs and essential goods and services for local people, in a sustainable and equitable way. It is also worth bearing in mind the additional benefit of the increased local tax revenue generated every time the money circulates locally.

At present, local economies too often resemble a 'leaky bucket', where money is poured in at the top by purchasers, only to pour out of the area to remote national or multi-national concerns. The aim of developing a more locally based economy is to plug some of these holes, to ensure more money remains in circulation locally for longer. This is, in essence, the thinking behind the development of local currencies, as in, for example, Bristol, Totnes and Brixton (see page 31).

In summary, we propose that what could be produced and provided here in the local area should be, where there is a net benefit overall. Our opportunity here is to increase the economic benefits to our area that come from money being spent in local independent shops and businesses and on local products.

This report identifies a multi-million pound opportunity to create new jobs, grow new enterprises and help existing businesses to thrive. We suggest the overall goal would be to maximise the wellbeing of all of our residents, and to do this in a way that uses and

distributes resources fairly while respecting natural limits. Economic growth is welcome, certainly within the sectors identified in this project, but not at any cost. This study hopes to contribute to local decision making and to stimulate activities that will increase our resilience and 'bouncebackability'.

Our approach

This project considers the existing situation in Buxton using data gathered from the 2011 Census and High Peak Borough Council. Analysis has been undertaken to estimate the potential impact on Buxton based on other national data produced by DECC, Energy Saving Trust, DEFRA New Economics Foundation, Commission for the Protection of Rural England and others.

This 'desk research' was then supplemented by the views of local businesses, residents and visitors to the town – through the means of surveys carried out over the summer of 2014. This - admittedly small – sample provides information regarding:

1. The business profile of the town, and the approach of businesses to promoting and contributing to local resilience e.g. through sourcing from local suppliers, reducing packaging, and making energy savings.
2. The views of residents and visitors to Buxton regarding their shopping patterns and preferences, their experience and general attitude to environmental considerations when making their shopping choices. We also asked local residents what they have done and would consider doing to reduce their own environmental impact.

Together this information provides a 'snapshot' of the current baseline, as a starting point for identifying potential opportunities for, and challenges to, the development of a more resilient local economy.

We then went on to consider the information in much greater detail for two key areas:

Food – exploring how we could be more in control of our food system, thereby retaining more money in the local economy, and reducing the impact of increasing food miles on affordability and the environment.

Energy – exploring how we could reduce our energy consumption and costs, increasing local skill levels and employment whilst greening our economy, and improving the comfort and affordability of our built environment through:

- Retrofitting our properties will help us to live and work in warm buildings with minimised energy bills, and provide skilled work for home grown local businesses.
- Renewable energy could help us to benefit financially from our own energy assets and reduce dependency on imported resources, as well as increasing community cohesion.

These key areas have been selected – in line with research carried out in other 'economic blueprint' areas, and within the 'green' economy generally – as areas which provide clear tangible opportunities to:

a) begin to make a meaningful transition to a more resilient economy,

b) provide genuine investment and employment opportunities for local businesses and
c) shift the direction of travel to a more sustainable lifestyle and culture.

Other locations undertaking similar studies have all researched food and retrofitting. The third areas vary, with some covering Transport, or Social Care. Renewable energy emerged as a clear area of potential growth in the High Peak, but there is certainly scope to undertake further research into other areas of the economy here too.

Who is this report for?

The overall desired outcome of the Buxton Economic Resilience Study is **better informed strategic economic planning and decision-making** that will help build the resilience of the local economy, and so the local community, in the face of economic uncertainty, rising energy prices and climate change.

This document is therefore aimed at the organisations and businesses that influence, and are part of, our local economy here in Buxton, as well as offering residents the opportunity to become actively involved in their town's healthy future. It is also intended as a place-based piece of evidence of how grassroots economic development can be used to grow more resilient communities across the UK and beyond.

We hope that our work contributes to a growing body of evidence about the potential of community economic development to *"redistribute economic power, reduce disconnection, inequality and vulnerability to economic failure"*[7], and that it inspires others to undertake similar projects.

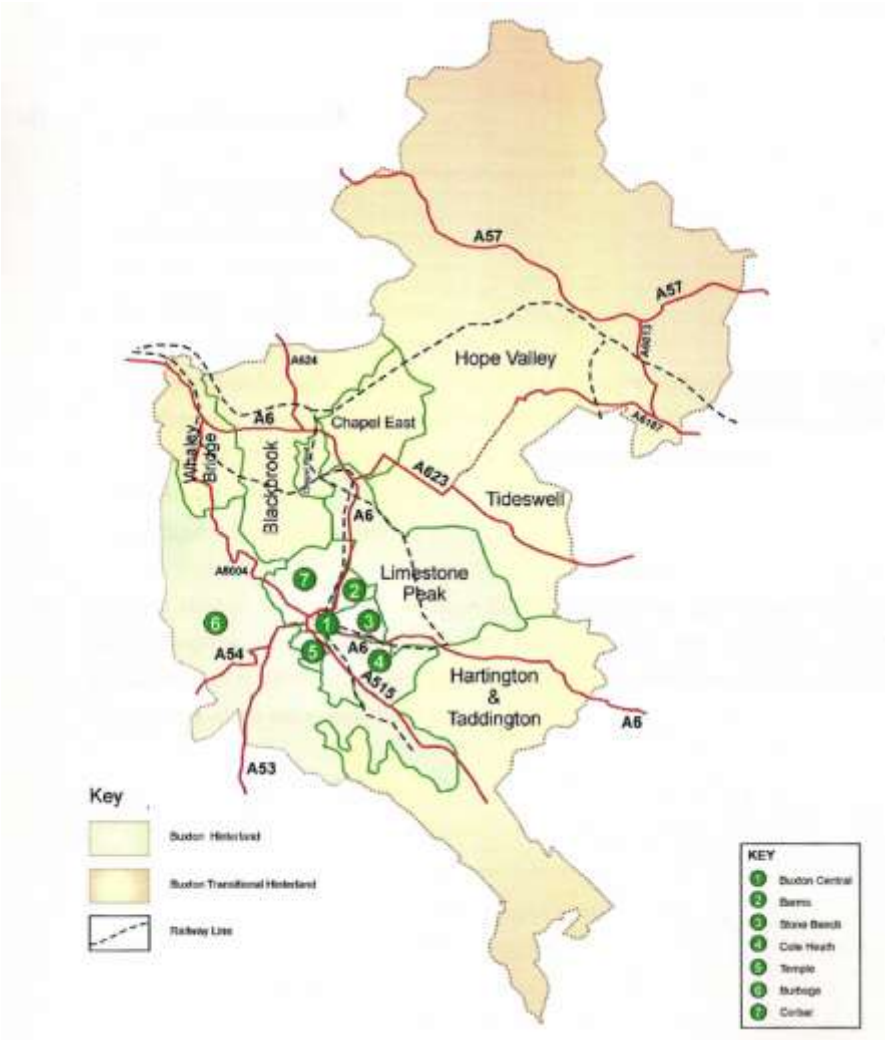
7 Hereford Local Economic Blueprint 2013

4. PROFILE OF BUXTON

Cradled in the surrounding Peak District landscape Buxton is blessed with an exceptional architectural heritage, high quality natural mineral water, decent public transport links, and clean air. In this section we describe and define where we are, how Buxton has developed, the profile of the people who live and work here, and the impact of the visitor economy.

Geography

Buxton, in the High Peak of Derbyshire, sits in a bowl at about one thousand feet above sea level, surrounded by mountains and is itself a mountain spa. The natural mineral water of Buxton emerges from a group of springs at a constant temperature of 82 degrees Fahrenheit and is, thus, a thermal water. Buxton has the highest elevation of any market town in England. Close to the county boundary with Cheshire to the west and Staffordshire to the south, Buxton is described as "the gateway to the Peak District National Park".



Buxton supports and is supported by a largely rural hinterland including for example the villages of Dove Holes and Sterndale which it is estimated add roughly 10% to the population. For reasons of practicality and accuracy the figures in this study are largely focused on the town's core population. However, it is worth bearing in mind that our community extends beyond the town's boundary into the hinterland illustrated in this map.

History

with thanks to www.historyofbuxton.co.uk

This area has been supporting human life for well over 10,000 years. Whilst the history of this inland resort can be traced as far back as the Mesolithic (middle Stone Age) period of early humankind, one of the most significant periods in the development of the town was the 70 years from 1840 to 1910 - the Victorian/Edwardian age of industry and innovation. This period of phenomenal growth should be set in the context of its earlier history to give some

feel for the growth of settlement, village and town and to see how and why Buxton should have become such an important Victorian spa.

The evidence of Mesolithic man suggests a settlement dating to about 5000 BC and archaeological finds in the Peak District around the settlement show habitation through the Neolithic Bronze and Iron Ages to the time of the Romans. Buxton in Roman times was known as Aquae Arnemetia, which translates as the waters of the Goddess of the Grove and the term 'aquae' is used by the Romans for one other town only, that of Bath which was called Aquae Sulis. From the historical evidence we can say that Buxton was a civilian settlement of some importance, situated on the intersection of several roads and providing bathing facilities in warm mineral waters. In short, it was a Roman spa. An important find of coins, near the site of the Roman bath, in 1975 indicates that the Romans inhabited Buxton for most of the time they occupied Britain.

Dressing the wells is a Peak District custom that probably dates back to pagan times.

In the Elizabethan era Buxton enjoyed considerable fame as a spa. Mary Queen of Scots visited to take the waters on several occasions during the time she was a prisoner in England. Her custodian, the earl of Shrewsbury, who was married to Bess of Hardwick, built the hall over the bath in Buxton to provide accommodation. From that time many wrote on the curative value of the warm waters and from these accounts it can be seen how Buxton continued to develop as a spa through the seventeenth century.

The eighteenth century was to see an upsurge of interest in bathing and water treatment with both inland and coastal towns becoming fashionable resorts. Buxton did not rival Bath in these terms, however, until the 5th Duke of Devonshire decided to provide greatly enhanced facilities in the shape of the Crescent, which offered hotels, lodging houses and an assembly room. This magnificent building was designed by the York architect, John Carr, and built between 1780 and 1784. The Great Stables, now the University of Derby, were completed in 1789. By 1820, with a population of under one thousand, Buxton could still be described as a village and facilities were still modest. Hall Bank, built largely in the 1790s, provided lodging houses and the Square, built 1806, offered more substantial town houses. In addition to the Hall and those in the Crescent, there were other hotels including the Grove, the George, the Eagle and the Shakespeare, together with a number of inns and ordinary lodging houses. The baths offered good facilities, three gentlemens', two ladies' and a charity bath and there were also hot baths, built in about 1818 and, on the Macclesfield Road, a cold plunging or tonic bath.

Quarrying has also been an important feature of the Buxton economy for thousands of years. Quarrying now is almost entirely for limestone, but historically other types of stone were quarried, and both coal and lead were mined in the surrounding hills.

While small-scale quarrying and lime burning had been going on for centuries, it was in the late 19th century that the industry really took off, with production increasing dramatically alongside the fast developing chemical industry. Buxton was well placed to take advantage of this expansion, with newly built railways, a major customer over in Cheshire (the pre-cursor of ICI) and access to vast quantities of high quality, chemical grade limestone. In 1891 thirteen local quarry owners amalgamated their businesses to form Buxton Lime Firms; by 1915 the company owned some 26 quarries, with towards 100 lime kilns, and employed thousands of workers. The 'super-quarry' at Tunstead, which was started in 1929 and is still in operation today, was at one time the largest quarry in Europe - it still has a valid claim to the longest quarry face[8].

The extent of the industry and its long history in Buxton is perhaps why the world's biggest international quarrying exhibition takes place every two years in Harpur Hill.

Today seven quarries are in operation in the immediate surrounding area, supplying high quality limestone products both nationally and internationally, and employing hundreds of people.

So, the natural resources of the thermal waters and local stone have long been important to the economy of Buxton and look set to remain so for many years to come.

Population

Key Demographic Statistics for Buxton

	Number (2011)	Change 2001-11
Total Population	22,700	+900 (+4%)
Working Age Population	16,600	+ 1,100 (+7%)
Households	9,800	+600 (+6%)
Average persons per household	2.3	

Source: Census of Population 2001 and 2011

There were 22,700 residents in Buxton according to the 2011 Census, comparing this with the 2001 Census indicates that the population increased by almost 900 people (+4%) over the previous decade.

There are a greater proportion of people over the age of 45 years old compared to the England average, although it is similar to that of Derbyshire.

There has been a significant fall in the number of people aged between 30 and 44 years old, but with increases in the younger and older populations. The increase in young people is

[8] historical data from Derbyshire Heritage

mainly among young adults aged 18-24, most likely a result of the University of Derby moving into the Devonshire Dome in 2006. The increase in the older population is spread across those aged between 45 and 74 years old, reflecting an aging population. Therefore Buxton is increasingly needing to meet the needs of both old and young adults – which can be seen in the increasing range of bars in town alongside the coffee shops.

The significant fall in 30-44 year olds is a common trend across both High Peak and Derbyshire over the last decade. Analysis from the New Housing Federation suggests that this trend across rural towns and villages in the East Midlands is due to rising housing costs.[9]

Buxton has a relatively small ethnic minority population, with just 5% of the population describing themselves as something other than White British. This is similar to the rest of Derbyshire but is around a quarter of the level across England as a whole.

Buxton Spring Fair May 2013

There are currently just under 10,000 households (9,759 to be precise) in Buxton, an increase of 555 between 2001 and 2011. Family households now represent 62% of all households (the rest being either one person households or flat shares etc), but there has been very little change in the number of these over the last 10 years. A third (32%) of households are now single person households - this group accounts for 71% of the increase in total numbers over the last decade. The rest of the growth in households is due to 'other' household types such as flat shares or student housing, which still only represents 6% of all households in Buxton.

The drop in average household size is in line with the rest of the UK, where it has been falling for the past 50 years. In 1961, there were 3.0 persons per household. By 2001 this had fallen to 2.4 person per household. The fall over the last decade has been a lot smaller, falling to 2.3pph according to the 2011 Census. There has been no significant change in the proportion of different household sizes nationally between 2001 and 2011.[10]

The Workforce

Key Economic Statistics

	Buxton	England
Economic Activity Rate	71%	70%
Proportion of 16+ with higher level qualifications	26%	27%
Proportion of 16+ with no qualifications	23%	22%
Unemployment rate	5.6%	6.3%
Part-time employment as % of total	25%	22%
Self-employment as % of total	15%	16%

[9] http://www.housing.org.uk/media/press-releases/thirty-somethings-abandon-east-midlands-villages-as-rural-house-prices-soar/

[10] http://www.ons.gov.uk/ons/dcp171778_304116.pdf

Number of people in employment	10,400	24,143,500

Source: Census of Population 2011, ONS

Of the 16,600 people aged 16-74 in Buxton, 70.9% are economically active, defined as those who are in employment or actively seeking employment. This is slightly higher than the England average, although below the average level in High Peak. The majority (89%) of those who are economically active are in employment, with the remainder divided evenly between those who are unemployed and those who are full-time students. This is broadly the same as the figures for High Peak and England, although the proportion of economically active full time students is slightly higher in Buxton.

A quarter (26%) of people over the age of 16 in Buxton hold degree level qualifications. This is slightly more than the proportion that hold no qualifications (23%). The qualification levels of the residents of Buxton is broadly similar to the national average, with a slightly higher proportion of people with qualifications compared with Derbyshire as a whole.

The number of people aged 16 and 17 year olds in full-time education is similar across Buxton, High Peak and England, whereas a greater proportion of residents in Buxton over the age of 18 are in full-time education.

The unemployment rate at 5.6% in 2011 in Buxton is around the national average. A relatively small proportion of those unemployed have never worked (11%) however there is a high proportion of persons who have been unemployed for over 6 months (43%). A quarter of the unemployed people in Buxton are under 25 years old, which is below the High Peak rate of 30%.

The claimant count for Buxton reveals that the town was hit particularly badly by the recession, with the number of claimants jumping from around 250 in June 2008 to over 600 in the first half of 2009. The number of claimants has been falling recently, with the latest figures for August 2013 at 425 persons.

The level of unemployment has tracked the England average during the last 3 years and remained above the average for Derbyshire and High Peak. Prior to the recession, Buxton had an unemployment rate which was significantly lower than the England average.

Just over half of the economically inactive people aged 16-74 in Buxton are retired. This is below average for Derbyshire, but above the England average. In contrast, students again make up a greater proportion of the population in Buxton compared with other parts of Derbyshire.

Employment

Of the 10,400 persons in employment in Buxton, over half (59%) are in full-time employment, a quarter are in part-time employment and 15% are self-employed. Buxton has a relatively high proportion of persons in part-time employment and fewer people who are either full-time employees or self-employed[11].

[11] 2011 Census

Over half of Buxton residents in employment are working in one of four sectors - retail/wholesale (16%), manufacturing (13%), Health (13%) and Education (11%). The following chart illustrates the relative size of the sectors in the Buxton economy (based on the size of the bubbles), whether they are growing or shrinking (based on the y-axis) and whether they are over or under-represented relative to the England average (based on the x axis).

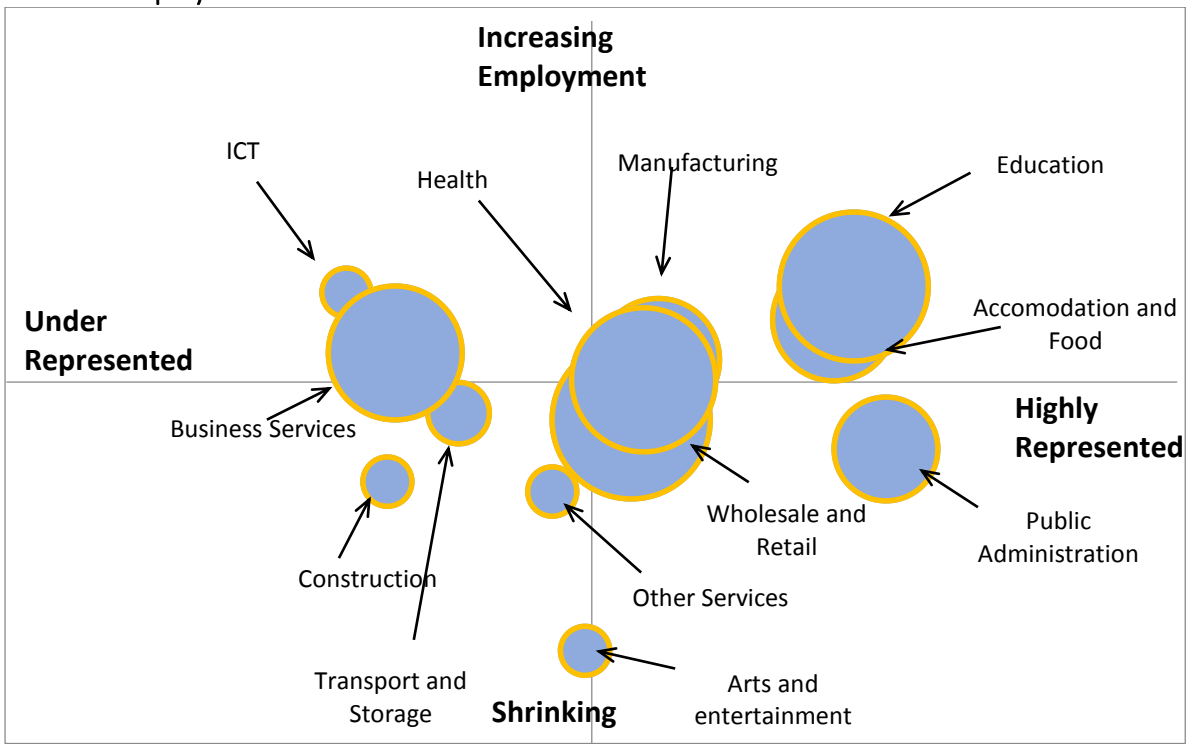
As across the rest of Derbyshire, manufacturing represents a much greater proportion of employment for Buxton residents than nationally. In addition mining and quarrying remains a significant employer in Buxton. Employment in education, accommodation and food is also above average. Employment in information and communication is below average. Other sectors have a similar representation of jobs in Buxton as elsewhere.

A relatively low proportion (35%) of the workforce in Buxton works in managerial or professional occupations compared with the England average (41%). This reflects the above average representation of the manufacturing sector.

Between 2009 and 2013, the number of people working in Buxton has fallen by 200 persons (-2.3%)[12]. This compares with an overall increase in employment across England of +2.0%.

This masks a substantial change in the number of part-time jobs, which has fallen by over 1,000 jobs, with an increase in full-time employment of some 900 jobs. Therefore, much of the difference between the Buxton and England figures over the last 4 years can be attributed to the fall in part-time employment, particularly in the arts, entertainment and recreation sector.

Sectoral Employment in Buxton



[12] Source: Business Register and Employment Survey (BRES)

Note:
The **size** of the bubble represents the **number** of employees in 2013 in Buxton
The **Y axis** illustrates the scale of **change** in employment between 2009 and 2013 in Buxton
The **X axis** illustrates the relative **concentration** of employment compared with the England average

Travel to Work

The car is the most popular mode of travel to work, used by two-thirds of people travelling to their place of employment. However, compared to Derbyshire, Buxton's level of car travel to work is lower. A high proportion of people in Buxton walk to work (21%) compared with the average elsewhere. Compared to the England average, the use of public transport is a lot lower.

Despite boasting a train station with a busy line to the nearby city of Manchester to the north, transport in and around Buxton is heavily dependent on the private car, particularly on routes to the south, east and west of the town. Cycling facilities for both visitors and locals are limited and bus services have not been embraced by a significant proportion of those working in and visiting the town. As illustrated in the table below 51% of those who responded to our on street survey had travelled into town by car, 30% walked and 10% came by bus.

Mode of travel to Buxton Town Centre

	Number	Percent
Car	58	51%
Walk	38	33%
Bus	11	10%
Other	7	6%
Total	114	100%

Source: Buxton Street Survey 2014

The 2011 census provides some indication of the commuting patterns for Buxton. These suggest that people are commuting more than they did 10 years ago, with only about half of people living and working in Buxton:

- Just over half (53%) of Buxton residents in employment also work in the town, this is down from the 62% recorded at the 2001 Census. Of those that commute out of Buxton, the most common place of work is elsewhere in High Peak (19%), Derbyshire Dales (6%), Cheshire East (5%), Stockport (3%) and Manchester (2%).

- 56% of those who work in Buxton also live in the town, which is also down from the figure in the last Census of 70%. Those that commute to Buxton to work are most likely to live elsewhere in High Peak (20% of people working in Buxton), Derbyshire Dales (6%) and Staffordshire Moorlands (3%).

- Although there is a smaller proportion of people who both live and work in Buxton, the difference between the number of jobs in Buxton and the number of residents who are in employment has fallen. There was net out-commuting from Buxton of 542 – i.e. Buxton is a bit of a commuter town, although this figure is half of the level in 2001, meaning that the size of the economy in Buxton is growing. There is a net

outflow to most places, with the exception of Sheffield and Staffordshire Moorlands (where there is a net inflow).

Employers

There were an estimated 770 businesses in Buxton in 2011. Accommodation and food service is important in terms of business numbers, but not as significant for employment, suggesting smaller businesses than average. Conversely, manufacturing is not overly represented in the number of businesses, suggesting that those businesses in Buxton are larger than average, since employment is relatively high. There are also a large number of transport and storage businesses. The data suggests that, despite housing the headquarters of the Health & Safety Executive & Laboratory, there is a low number of professional and scientific businesses in Buxton, in common with rest of Derbyshire.

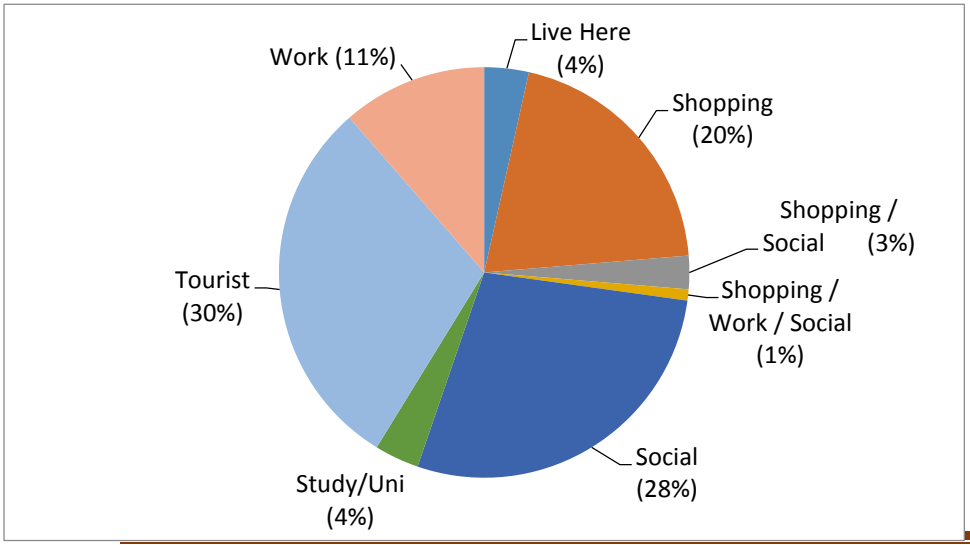
Small businesses still dominate the Buxton economy, with three quarters of business employing fewer than 5 people. The size profile of businesses is similar to the England average, with a greater proportion of larger businesses than across High Peak as a whole. Across England, although small firms dominate the landscape, more than 80% of jobs are provided by firms with more than 10 employees.

In general terms a varied economy is a more resilient economy, so the large employers and small businesses both have important roles to play in our local ability to adapt to change.

Visitors

Tourism in Buxton generated a massive £73.5 million for the local economy in 2013[13]. This is reflected in the fact that in the on-street survey undertaken as part of this study 18% of those responding came from more than 50 miles away, 9% from between 20 and 50 miles away, 17% from 10 to 20 miles away, 12% from 5 to 10 miles away, and just under 44% from less than 5 miles away.

In the same on-street survey the largest group described the main purpose of their visit as tourism (30%), however, only slightly fewer people (28%) were in the town centre to socialise, nearly 23% said they were mainly there for shopping, and just over 10% for work, with 4% to study.



Q: What was the main purpose of your visit today?

Despite the challenging economic climate, research by Global Tourism Solutions (UK) Ltd[14] revealed that the economic impact of the tourism industry in Buxton in 2013 is similar to the impact in the previous year, but is 20% higher than it was in 2009. The economic activity in the tourism industry currently supports 1,100 full-time jobs in Buxton in 2013.

In 2013, there were 1.42 million visitors to Buxton. Although this represents a 1.1% fall from the previous year, the numbers are still more than 50,000 higher than in 2009. Whilst this reflects the growing trend for 'staycations', and away from short haul flights, the choice of Buxton as a destination can also be credited to a number of factors including: increased interest in active and adventure holidays, the continued success of Buxton Opera House and the Festivals in drawing in visitors, and the fact that roughly 70% of the visitor beds in the wider Peak District are in Buxton.

Shopping

A low retail vacancy rate of 6.7% in November 2014, compared to roughly 11% nationally suggests a fairly healthy local retail economy. The independent retail sector is quite strongly geared to the visitor however, with limited fashion, toys and white goods on offer. There is an above average range of cafes and eating establishments frequented by students and tourists as well as local residents.

The retail mix in Buxton reflects not only the visitor economy but also the fact that 4,100 people (47% of the town's residents) travel out of Buxton for work, where they also do a portion of their shopping.

Essential shopping for food and household consumables in Buxton is dominated by national and international supermarkets and multiples with limited local produce on offer despite lying at the heart of an agricultural landscape.

The shopping offer, habits and opportunities are explored in more detail in the Food & Agriculture section below. We have used food here partly because it is something everyone needs and uses, but much of the same information and opportunities are true across all our personal and business purchases.

[14] Global Tourism Solutions, Draft Steam Report for Buxton 2009-13

Summary & Conclusions

Buxton has a reasonably diverse economy including manufacturing, tourism and higher education. The presence of the University of Derby in the town goes some way to balancing a population which includes above the national average of retired people. In the Town Centre survey which forms part of this report 88% of respondents rated community spirit in Buxton as either 'good', 'very good' or 'fabulous'. These are healthy signs for the resilience of our local economy; however there are gaps and opportunities identified in this study that have the potential to increase our capacity to withstand the effects of global change in more comfort.

5. LOCAL PROCUREMENT WITH A FOCUS ON FOOD

As explained above, the amount of money circulating in the local economy makes a big difference. We decided to look at food in particular. The growing and selling of local food is an important part of a sustainable economy[15]. Sourcing local produce should be a no brainer - the produce is fresher, local people have a vested interest in supporting local businesses, and visitors want an authentic experience.

However economies of scale mean that large national supermarkets are set up to purchase produce centrally to get the best deals – they often have regional supply chains in order to reduce costs, but it becomes too complicated for them to buy bespoke for every store, which would then lose the benefits of being a large buyer. Most of these chains aim to buy British where possible, however, shrinking the supply chains even further is a challenge.

As a compromise, most supermarkets seek to have some local produce on their shelves – a survey of the major retailers undertaken by CPRE[16] found that most have some sort of policy relating to local food, and we have all seen local brands on the shelves e.g. Thornbridge Ale, Buxton Blue Cheese and Staffordshire Oatcakes. However, there are no targets set and the proportion of local produce is likely to be very low – CPRE suggest setting a target of 10% for local produce (defined as within 30 miles).

The UK situation

Just over half of the food consumed in the UK is sourced domestically and as a country we import £40 billion of food annually. However, we also export £18.9 billion of agri-food produce, which is an increase of a third in less than 10 years.

The agri-food sector in the UK is worth almost £100 billion to the economy, when we include growing, processing, retailing and catering. The sector as a whole employs 13% of the workforce.

However, there is a huge amount of waste. Overall 15% of edible food and drink purchases are wasted at an estimated cost of £480 per year for an average household. In addition, many of our small UK farmers are being forced into bankruptcy due to pressure for profits from powerful supermarkets, and their large scale processors.

Fruit and vegetable consumption is falling. The lowest 10% of households by income purchase the least fruit and vegetables at an average of 2.9 portions per person per day in 2012, 14% less than in 2007. It is perhaps no coincidence that this comes at the same time that obesity levels are rising to the extent that obesity now ranks 3rd in a list of the global social burdens

[15] http://www.cpre.org.uk/what-we-do/farming-and-food/local-foods/the-issues
[16] http://www.cpre.org.uk/magazine/opinion/item/3324-supermarkets-challenged-to-do-more-to-support-british-farmers

generated by human beings, with smoking the 1st, arms & violence 2nd, and climate change 6th[17]. Poor diet and health have substantial economic costs in addition to personal detriment and suffering.

The Buxton situation

The soil type and climate in the Buxton area are not ideal for growing a wide variety of food, although there are still a good range of local producers of food products. You don't have to go far to be able to source most types of primary produce, and a 30 mile radius of Buxton, takes us to Derby, Sheffield, Manchester, Stoke and between us are large areas of agriculture.

Office of National Statistics (ONS) data indicate that there are 35 agricultural businesses registered in Buxton itself and a further 245 across High Peak. A total of 75 Buxton residents indicate in the Census that they work in agriculture, with a further 360 residents of High Peak working in agriculture. As a proportion of the total workforce, the Buxton figure represents around 0.7%, which is broadly similar to the England average of 0.8% and slightly below the High Peak figure of 1.0%.

In terms of food and drink processing, the data indicate that there are only a small number of producers (10 registered businesses) across High Peak involved in the manufacture of food on a scale that might see them supplying bulk buyers. It would obviously be difficult for the large national chains to source an extensive range of products from these few producers, and therefore smaller specialist food shops are much more able to source and sell a good range of local produce purchased direct from the smaller producers.

Food retailing in Buxton

This section focuses on the food retail sector and sets out what we know about food retailing in Buxton.

The Family Spending Survey produced by ONS[18] indicates that the average household spends almost £100 a week on food and drink, made up of £56.50 a week on food and non-alcoholic drinks, £7.80 on alcohol, and a further £33.10 on restaurants and takeaways.

The High Peak/Staffordshire Moorland Quantitative Retail Study published in October 2013 by GVA Grimley presents up-to-date information on the spending patterns in Buxton. The study splits spending into two categories;

- Convenience spending (i.e. food, toiletries, etc) and
- Comparison shopping (i.e. clothes, TVs etc).

[17] MGI Obesity Report, November 2014

[18] http://www.ons.gov.uk/ons/rel/family-spending/family-spending/2013-edition/rpt-chapter-1--overview.html

2013 GVA Grimley Retail Study Findings for Buxton

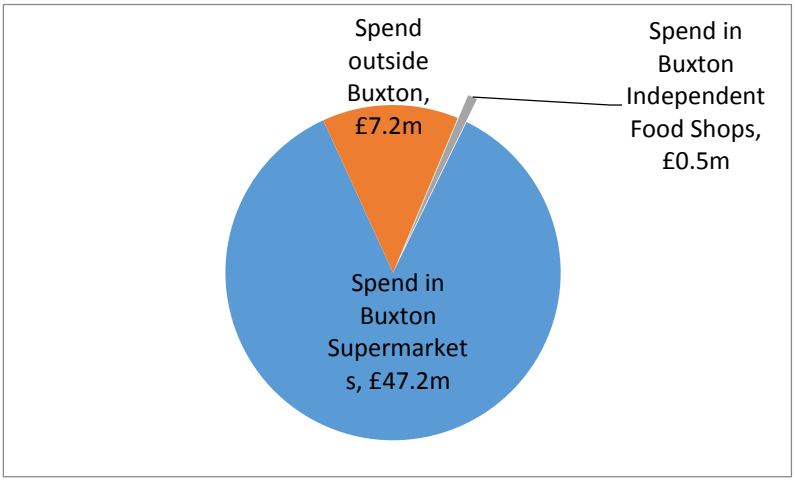
	2013 household spending	Proportion spent in Buxton	Proportion spent in the Town Centre	
Main Food	£41.2m	86.6%	17.9%	Very little spent with independent retailers. Town centre spend is predominantly M&S, Iceland and Waitrose
Top up food	£13.7m	87.6%	35.9%	3.7% (£0.5m) spent in local independent shops (down from 28.5% in 2009 –share taken by Aldi and Waitrose)
Total Convenience expenditure	**£54.9m**			**95% spent in High Peak**

A previous study was undertaken in 2009, which allows us to analyse the trend over time. This split is mirrored in the on street shopper survey undertaken in Buxton.

The 2013 study estimates that together households in Buxton spend almost £55m on convenience items. Over 85% of this expenditure by households in Buxton is spent in shops within the town. There are 21 food retail shops in Buxton according to the study including many of the national food retailers[19].

Buxton Household Expenditure on Food

A comparison of the figures from the two retail studies suggests that Buxton's independent food shops have seen a dramatic decline in fortunes in the past 4 years and that there is an extremely limited spend with independent retailers. There is perhaps a classic 'Catch 22' here of supply and demand reducing consumer options.



The 2009 study found that the main food shop in independent stores was worth a total of £1.4m with a further £3.5m spent in these stores for top-up shopping. This indicates that almost £5m was being spent on food in local food retailers in 2009. This is equivalent to around 10% of household spending on food. Based on ONS statistics this spending is likely to have supported around 70 jobs in the town.

[19] Including Morrison's, Aldi, Waitrose, M&S, Iceland, Tesco, Sainsbury, Co-op and Greggs.

By 2013, the level of convenience spending estimated to be in independent stores had fallen by 90% to £0.5m, made up almost exclusively of top-up shopping. This has been absorbed by an increase in spend at Aldi and Waitrose. Therefore shopping in independent food shops in Buxton currently represents around just 1% of household spending on food.

Monthly Farmers Markets in Buxton have been held for some 10 years now with a rough average of 30 stalls including meat, dairy, vegetables, garden plants, baked goods and homemade preserves. The annual Great Peak District Fair in October draws over 100 local stall holders from within the National Park area including approximately 60% food businesses. The twice weekly traditional market has fallen rather fallow over recent years, although there are now prospects for this to be reinvigorated which would increase the local shopping options – see Reinvigorating the Market Page 30.

Between 2009 and 2013, the level of convenience spending estimated to be in local stores fell by 90% to £0.5m, made up almost exclusively of top up shopping. This has been absorbed by an increase in spend at Aldi and Waitrose.

Derived from High Peak and Staffordshire Moorlands Retail Study 2013

ONS statistics indicate that it takes £124,000 of spending to support 1 job in non-specialist retail stores, whereas, in specialist food stores, the ratio is only £70,000 of spending per job. Therefore, the economies of scale that large supermarkets gain in terms of buying power is also seen in their ability to sell the same amount of produce with fewer staff.

Figures from BRES[20] indicate that between 2009-13 employment in retail and wholesale in Buxton fell by over 100 jobs (8%).

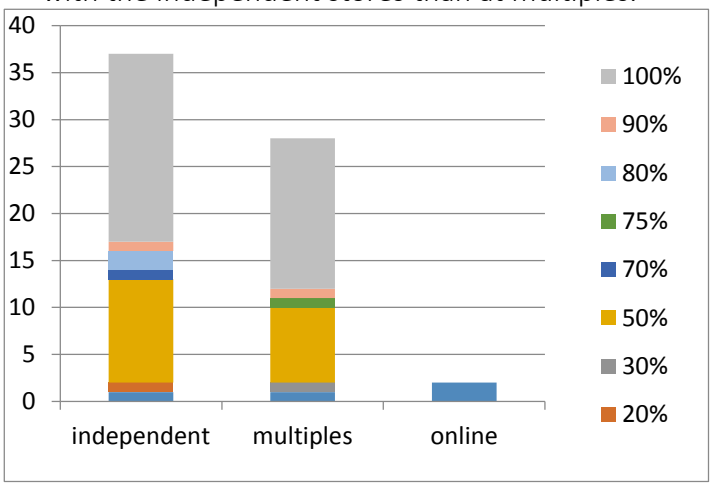
This suggests that the independent food sector in Buxton is extremely limited. It may be that the retail study is a little too pessimistic, and clearly it fails to account for spending at the range of food fayres that operate in Buxton throughout the year, but it does highlight a particular gap in the offer in Buxton.

Proportion of Food and Drink Expenditure by type of outlet

As with other town centres, shopping is no longer the main reason for visiting Buxton town centre. The visitor survey undertaken as part of this study found that only 24% of visitors were in the town centre for shopping. Many more were in the town either socially or as a tourist.

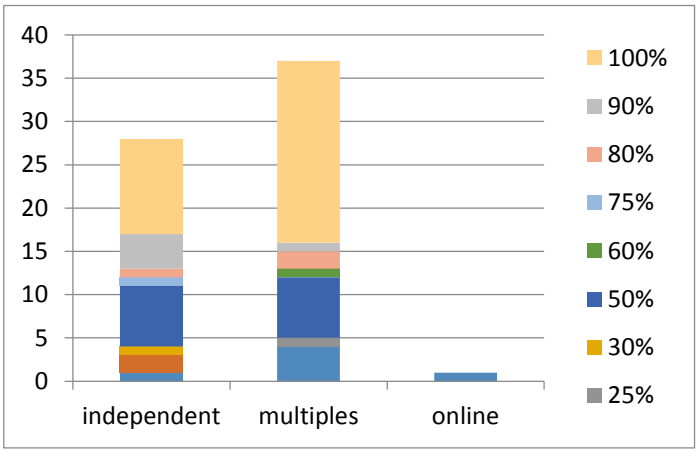
[20] Source: Business Register and Employment Survey 2013

When asked about how they were likely to spend on food and drink for immediate consumption, slightly more of the respondents expected to spend money on food and drink with the independent stores than at multiples.



*Proportion of spend on **non-essentials** in Buxton by outlet type*

Likewise, in terms of shopping for necessities, which is predominantly food, more people who were shopping for necessities were planning to spend money in multiples rather than in independent stores on the day they were surveyed. Significantly more were expecting to make all of their spending in multiplies for necessities. However, a quarter of those questioned still expected to make at least some of their purchases for necessities at independent stores.



*Proportion of spend on **essentials** in Buxton by outlet type*

Unfortunately, it is difficult to see a niche for new shops – the present supermarkets cover the full range from low cost foods to premium products. It may be that the food fayres do indeed fill the gap in offering local produce – however, there is strong evidence that more independent shops would be good for the economy and the environment.

Cafés and restaurants

Buxton has a fantastic offering of cafés and restaurants. The visitor survey undertaken in the town centre indicates that cafés and restaurants received the highest ratings of all the services offered by the town. Two-thirds of respondents consider them to be very good or excellent.

Local produce features on the menus of many of the independent cafes and restaurants, however there is clearly potential to encourage more of this sort of 'authentic experience'. There should also be potential for national chains to offer more local produce.

Typically, local produce is sold as a premium product, with consumers interested in the provenance and the quality that goes along with that. To increase our local resilience there is scope for a wider range of products to be sourced locally.

Issues & challenges

The issues and challenges around increasing the proportion of locally produced food available to local consumers and visitors is different for the independent sector than for the multiples due to their different sourcing and distribution models. Whilst economic and corporate social responsibility requirements will continue to increase the pressure on the multiples to revise their centralised buying and warehousing over time, the more agile independent sector can change more quickly.

It is perhaps worth noting that the cafes and restaurants in Buxton appear to be taking advantage of the added appeal and higher prices they can charge for locally sourced food. However, with a few notable exceptions like Mycock's Butchers and Bon Appetite Deli, the local food shops in the town have dropped away in recent years. The absence of local retailers selling local food can be partly explained by the dominance and convenient national supermarkets in a tourist town where high street rents (and the associated Business Rates based on property value) remain high despite shrinking retail profit margins.

Monthly Farmers Markets at Pavilion Gardens and ad hoc fairs and events go some way to offering local people an opportunity to purchase local food and ingredients. However, a clear gap remains between local supply and local end users.

Introducing initiatives and actions that will help to bridge this gap, reduce food miles, and increase local food resilience could make an important difference.

Opportunities

Based on total spend of £64.30 per week (not including cafes & restaurants), if just 10% of local people purchased 10% of their food & drink from local sources that would equate to £326,000 into the local economy each year. Using the 2.5 local multiplier effect, this would mean an increase of £815,800 per annum to the local economy.

There is a 'catch 22' in any supply and demand circuit which is perhaps best resolved by approaching it from both ends.

To increase demand for locally sourced food products people need to understand the value of reduced food miles, increased local employment and so on. Perhaps, with support, Transition Buxton, Vision Buxton, Buxton Town Team and others could endeavour to increase awareness and understanding of this value. The key economic messages of such a campaign have been neatly summed up by the Totally Locally movement elsewhere based on the leaky bucket model explained above. There is also the fact that fresh food is often cheaper, lasts longer, tastes better and does not require excessive packaging and consequent increased quantities of waste.

Increasing supply means supporting local producers and new food businesses to grow and thrive. The local Borough and County authorities, and D2N2 Local Economic Partnership do provide some funding and support for new and existing food businesses although these tend to be geared to increased employment and larger businesses with export potential.

We are aware of several local projects and initiatives that could help to increase the proportion of locally produced food consumed in Buxton, as detailed below.

Serpentine Nursery Project

Reputedly used to grow food during WWII, the Serpentine Park Nursery just off Burlington Road in central Buxton had fallen into dereliction. The plan is to bring a major part of this asset back into community use as a research and educational facility, and in the process to grow food once again. The facility would be open to the general public for classes in horticulture and gardening skills, while produce could be sold on to supply the University's catering school and other local restaurants. In addition Buxton & Leek College are planning to base part of their teaching syllabus on the site.

The current position is that Transition Buxton was granted a license from HPBC to access most of the site, and dozens of volunteers have already invested hundreds of hours clearing unwanted trees and undergrowth; work on constructing raised beds, composting bins and the like will start soon. Alongside this, a detailed business plan is being worked up and the documents to register Serpentine Community Farm as a separate Community Interest Company are being drawn up. Some funding has already been secured and other grants are being applied for. It is hoped that discussions with HPBC on the detail of a long term lease will start very soon.

You can find more detail about the project so far on the Transition Buxton Website - http://transitionbuxton.co.uk/node/546 or on the Serpentine Project Facebook page - https://www.facebook.com/serpentineprojectbuxton

Buxton's community orchard

Over the last five years, Transition Buxton have planted more than 50 fruit trees around the town in a number of locations including among others Burbage, Cote Heath, Ashwood Park

and Fairfield. The principle of a community orchard is that the fruit is available to anyone in the local community to help themselves. Most of the trees are still quite young so it will be some years before there is a significant harvest. However, this initiative, which clearly has other environmental benefits in addition to the fruit, is still expanding, with more trees planted each winter, in more locations, and in the future fruit bushes could be planted as well as fruit trees.

Revitalising the market

The twice weekly market has fallen largely moribund over the last ten or more years. There has been a recent resurgence of interest in 'bringing the market back to the Market Place' and High Peak Borough Council is now being courted by a number of entrepreneurial individuals and organisations with ambitions to take on the traditional market for the benefit of the local economy and community.

The revitalisation of the market would potentially provide an opportunity for local people to procure more of their food and other goods from local suppliers, and for suppliers to bring their produce into town. This positive spiral could escalate to demonstrate sufficient demand for the return of an indoor market in due course where small local businesses can operate at low cost.

Collective Communications

By working collaboratively businesses can significantly increase their individual profile, the efficiency of their operations, and the return on their marketing and communications investment.

Collective marketing and communications are increasingly important within local economies. This is demonstrated by the upsurge of Business Improvement Districts, Town Teams, Traders Groups, and Destination Management Organisations (and similar) across the world in recent years. Buxton is blessed with several of these who already work synergistically for the collective benefit of the town. These existing vehicles are already working towards bringing about a single collaborative set of marketing and communications tools to support and enable new and existing enterprises in the town to thrive. By working collaboratively businesses can significantly increase their individual profile, the efficiency of their operations, and the return on their marketing and communications investment. An obvious example would be a town website with every business detailed and the facility to order from several businesses for a single home delivery or collection.

Some years ago the Peak District National Park worked with partners including the University of Derby to develop and promote local foods under the Peak Fine Foods and Peak Cuisine brands with some considerable success, particularly in the restaurant and accommodation sectors. Sadly the funding for this initiative has dried up and the ambition to establish a Peak District-wide local food ordering and delivery service has yet to be realised.

It is possible to purchase some local food online including meat, cheese, beer and chocolate from individual suppliers[21], however a broader local food offer, including a click and collect service, is not currently available on the high street in Buxton.

A feasibility study could be undertaken to scope the commercial viability of such an enterprise, including a click and collect service.

Local currency

Many communities across the world have set up their own local currencies as a means of keeping money flowing locally longer and strengthening local identity and pride. Unlike barter schemes, time banking and the like, local currencies are open to anyone and do not require users to join a scheme. Strictly speaking they are money vouchers, and to all intents and purposes they work as real money, with a fixed exchange rate against the national currency of the country. The difference is that they are only accepted as payment in the local area where they operate; because of the multiplier affect they are likely to recirculate many times, increasing the value of spend to the local community.

Keys to a successful local currency are:

1. Flexibility in how you can use it

The best local currency systems do not rely on just printed notes. Many allow users to open an account with a local credit union, allowing electronic payments and transfers exactly as you would with a normal bank account. Many also have 'pay by text' schemes which are popular with small traders who may not feel able to justify the cost of running a card payment scheme (typically 3% of transaction value).

2. Wide range of ways to spend it

A local currency operates largely between retailers and their customers, but with local authority support, it can also be used to pay for parking, business rates or council tax. In Bristol an agreement with the local transport company enables Bristol Pounds to be used on the buses.

3. Large user base

To be successful a local currency needs a large enough population for businesses to see using it as worthwhile. Some suggest that a minimum population of 250,000 is needed, but many local currencies work well with far smaller populations than that.

[21] see http://www.visitpeakdistrict.com/see-and-do/Inspired_Peak_Food_Drink.aspx

There are many hundreds of local currency schemes in the world; in the UK we have five so far (Totnes, Lewes, Stroud, Brixton and Bristol) but more are being developed. Key facts about the five are shown in this table[22]:

Location	Start date	How used	Used for	Nº Outlets	Population
Totnes	May 07	cash, text & electronic	retail, services	155	25,100
Lewes	Sept 08	cash only	retail	80	97,500
Stroud	Sept 09	cash only	retail, services	60	112,800
Brixton	Sept 09	cash, text & electronic	retail, services, business rates	260	66,300
Bristol	Sept 12	cash, text & electronic	retail, services, business rates, council tax, bus fares	> 750	428,200

An analysis by Transition Buxton in 2013 concluded that a local currency operating just in Buxton would probably not be viable; the population is too small, there are not enough outlets. The High Peak however has a resident population of over 90,000, and a large number of regular visitors from the surrounding cities and beyond. The High Peak main centres of population between them have over 800 commercial outlets (including shops, pubs, cafes and restaurants), the total number in the borough is possibly twice that. A High Peak currency has the potential for success with a consequent significant increase in spending with local and independent businesses, and a positive impact on the local economy, or a Peak District-wide currency might work whilst also adding to the visitor experience. The first step would be for a small group of volunteers to work up the case for a local currency and endeavour to recruit an inaugural group of businesses and organisations to accept it, then build from there.

For more information about independent currencies and how they work go to http://guildofindependentcurrencies.org/why-have-a-independent-currency/ . For notes of proceedings and slides from the Alternative Economy Seminar organised by Transition Buxton in autumn 2013 please go to http://transitionbuxton.co.uk/node/577

[22] References: Population from the 2011 census Data for currencies from their various websites www.bristolpound.org; www.brixtonpound.org; www.stroudpound.org.uk; www.thelewespound.org; www.totnespound.org

6. ENERGY

Introduction

Overall, the price of energy is on the rise[23] (short term peaks and troughs notwithstanding). As the more readily available sources of fossil fuels are used up, the cost of extracting and processing the harder to reach resources will be higher. The UK Government's fossil fuel price projections expect prices to start to rise further from 2020 onwards. Meanwhile, the global demand for energy is growing, thanks in part to developing economies including China, leading to more competition for the remaining resources. Political instability in energy-rich regions adds further supply squeezes, and price impacts. In order to provide genuine economic resilience in our community, we need to work towards both reducing our energy demands and providing secure, sustainable and affordable sources of energy that are not tied to world commodity prices.

This section considers the existing energy situation nationally and locally, and suggests ways in which energy needs can be practically addressed including:

- Retrofitting existing building stock/energy efficiency
- Increase local renewable energy resources.

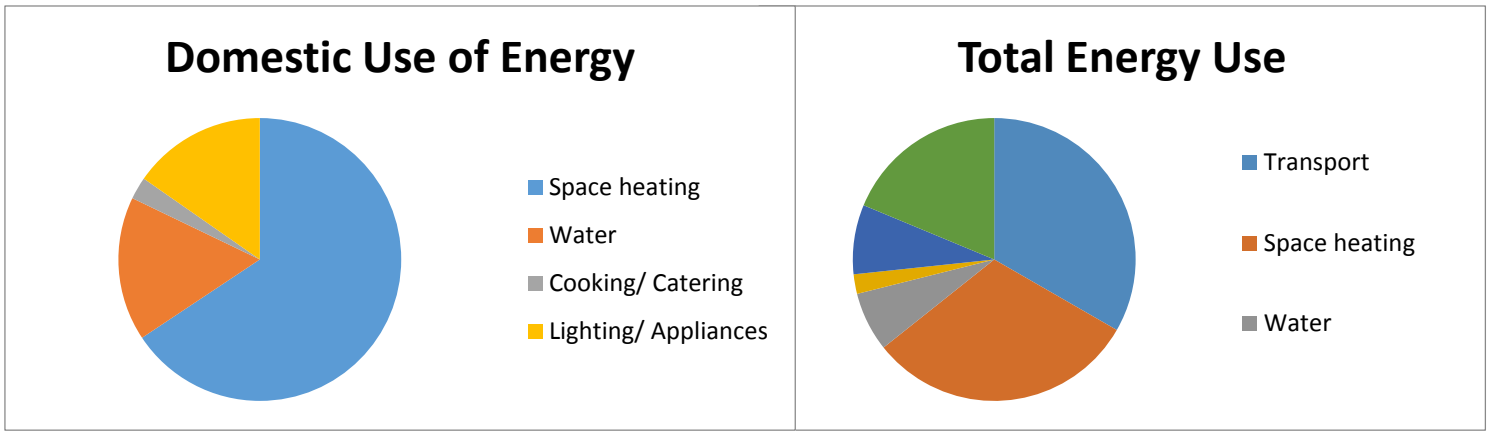
Current UK situation

According to the UK government[24], 40% of the UK's energy consumption and CO2 emissions comes from the way buildings are used. Therefore, it is simple to understand that changing the energy use in buildings can have a dramatic impact on the requirement for energy.

The figure below illustrates that space heating and transport are the largest users of energy, with space heating in our homes consuming energy equivalent to 28 million tonnes of oil per annum, which is around a fifth (19%) of all the energy we use in the UK. Transport is the largest area of energy use, representing 29% of energy use in the UK.

[23] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/360598/DECC_2014_fossil_fuel_price_projections.pdf

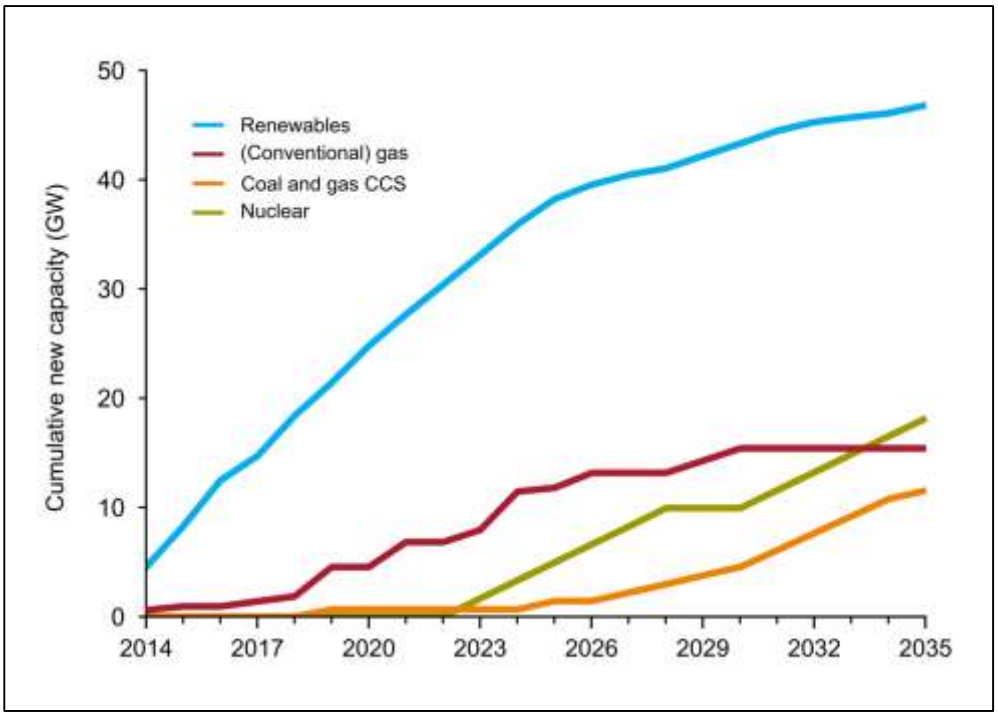
[24] https://www.gov.uk/government/policies/improving-the-energy-efficiency-of-buildings-and-using-planning-to-protect-the-environment/supporting-pages/energy-performance-of-buildings



In terms of the source of this energy, oil provides 6% of household energy, electricity provides 22% and gas provides the majority (68%) of the energy to heat our homes. Bioenergy and energy from waste represent 2% of the energy that we use[25].

In addition, each year the government produces energy and emission projections[26]. These indicate that the UK is on course to meet the 2nd and 3rd Carbon budgets (i.e. the fixed CO_2 targets) up to 2022, but is looking unlikely to meet the 4th carbon budget for the period 2023-27.

The projections expect a doubling of renewables capacity from 25GW in 2014 to 50GW in 2022. This is expected to increase into the longer term representing the bulk of new energy capacity.



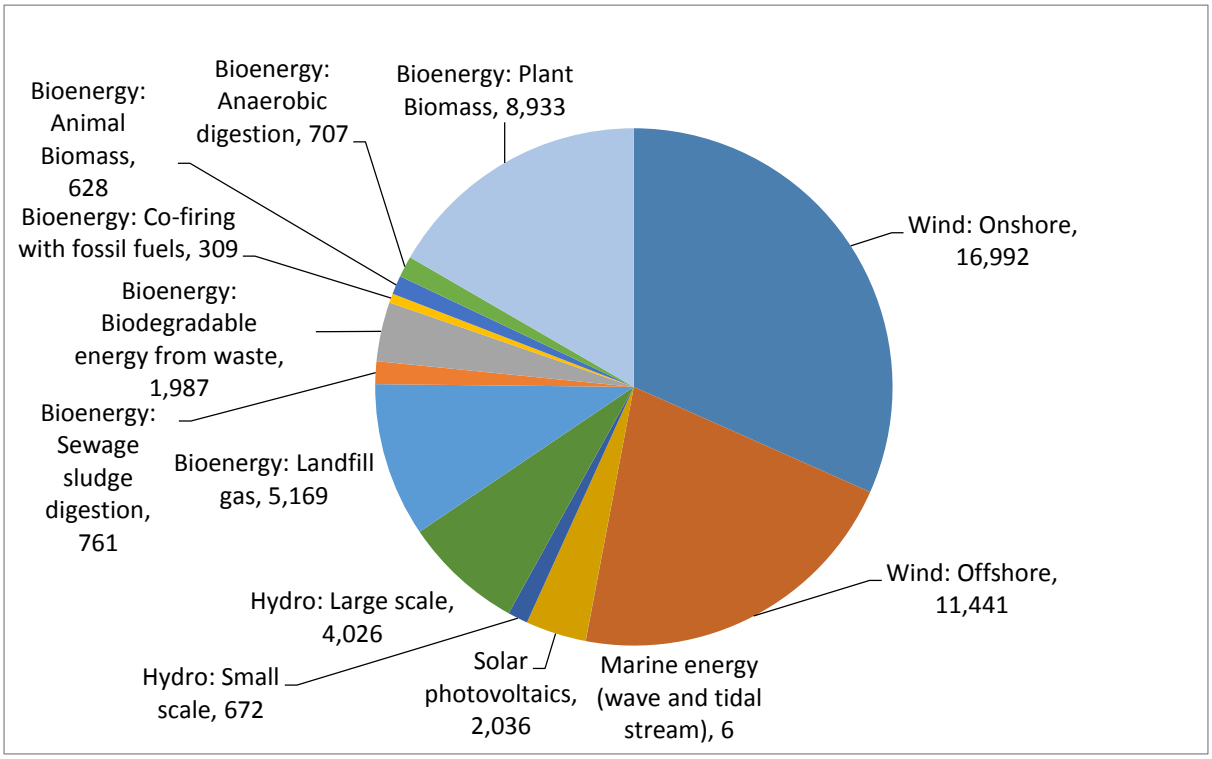
With a number of large schemes coming on stream, renewable energy is providing more and more of our energy needs. Between 2012 and 2013, electricity from renewable energy sources increased

[25] https://www.gov.uk/government/statistics/energy-chapter-1-digest-of-united-kingdom-energy-statistics-dukes

[26] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/368021/Updated_energy_and_emissions_projections2014.pdf

by 30% up to 53.7TWh, with onshore wind up by over 50%.[27] The contribution of renewables to UK electricity generation was 14.9% in 2013.

2013 Renewable Energy Generation (GWh)



The Buxton situation

To analyse domestic energy use in Buxton, we have used national data sources to provide estimates of the amount of energy used per dwelling and the number of dwellings of each type in Buxton.

In total the 2011 Census identifies almost 10,000 (9,759) dwellings in Buxton, with semi-detached houses and terraces making up more than half of the housing. Two-thirds of houses are owner occupied and there are slightly more private renters than those in social housing.

Overall data published by DECC (The Department for Energy & Climate Change) indicate that houses in High Peak consume 15,500kWh of gas per annum, around 10% more gas than the England and Wales average. However, electricity usage per dwelling is more similar to the national average at 4,100 kWh.

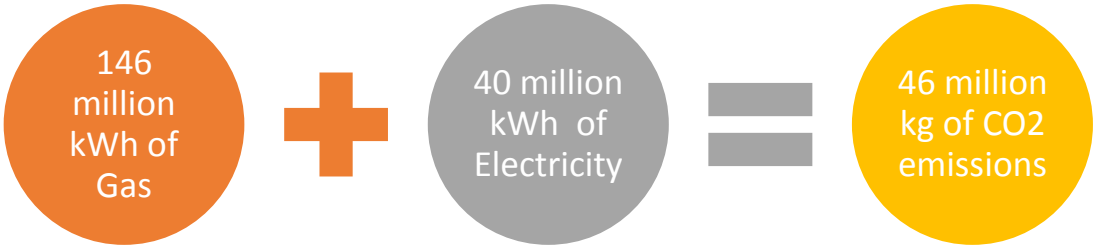
Applying the average energy consumption per dwelling to assumptions about CO2 emissions per kWh as presented by the Energy Saving Trust EST[28] arrives at an estimate of the typical

[27] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/337684/chapter_6.pdf
[28] http://www.energysavingtrust.org.uk/Energy-Saving-Trust/Our-calculations

CO_2 emissions per dwelling. This ranges from 2,900kg of CO_2 for a purpose built flat in Buxton to 6,603kg of CO_2 for a detached house.

Applying these estimates to the number of dwellings in Buxton suggests that total CO_2 emissions from housing in Buxton is just over 46 million Kg of CO_2 each year.

Estimated Energy Use and CO_2 emissions from housing in Buxton



	Gas (kWh)	Electricity (kWh)	CO_2 emissions (kg)
Detached house	35,795,600	8,866,800	10,842,454
Semi-detached house	53,184,000	13,960,800	16,487,040
Terraced house	34,308,600	9,241,800	10,748,846
Purpose built flat	11,014,100	3,848,300	3,873,778
Flat in a converted or shared house	9,326,700	3,108,900	3,208,385
Flat that is part of a commercial building	2,721,900	907,300	936,334
	146,350,900	**39,933,900**	**46,096,838**

Many scientists tell us we must reduce the amount of CO_2 in the atmosphere from its current level of 400 parts per million and increasing by 2 ppm per year to below 350 ppm if we are to preserve the viability for human life on the planet.

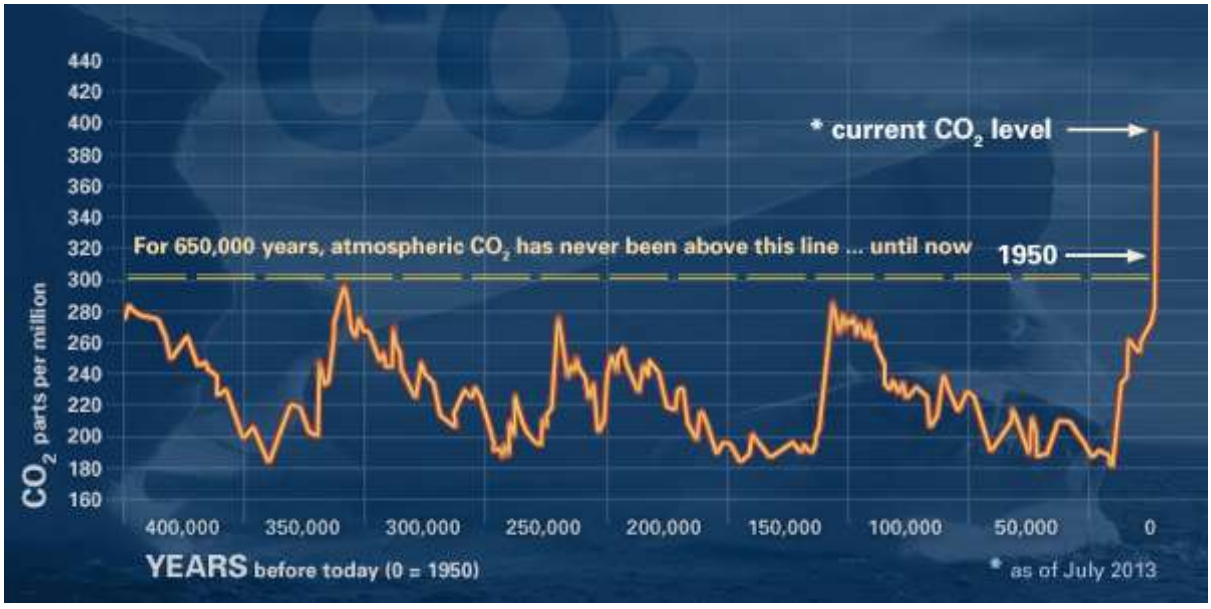


Chart Source: US National Oceanic & Atmospheric Administration

Everything and anything that we can do to reduce our CO_2 emissions is valuable and needs to be a priority for individuals, businesses and governments. For more information about CO_2 and why it matters see Appendix 3.

Information from Buxton resident and business surveys June 2014:

Residents:

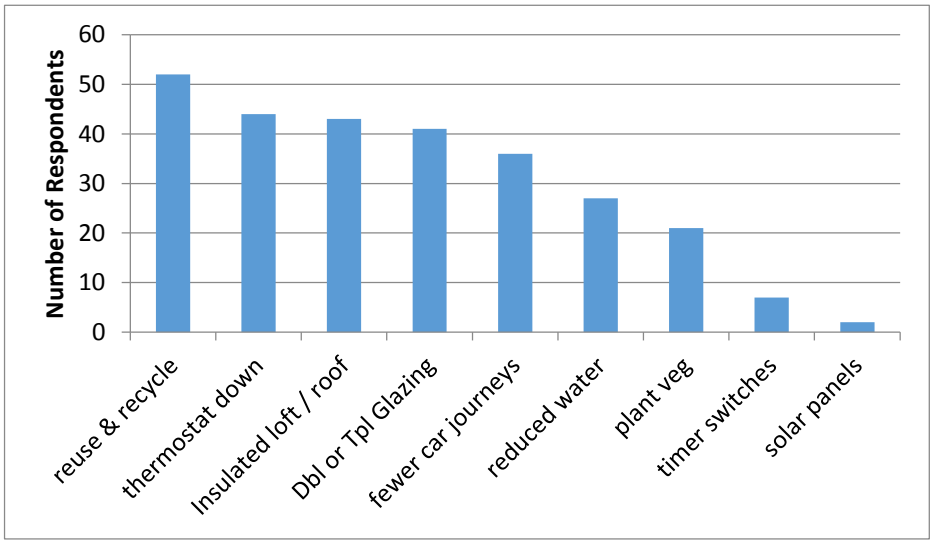
A total of 61 people (out of the total of 114 respondents) who were interviewed as part of this study answered the questions aimed at those who live locally to Buxton town centre.

All but two of those who live locally to Buxton have undertaken measures to reduce their environmental impact, with a high proportion reusing and recycling.

Over half of the local residents surveyed have reduced water usage and a third have grown some of their own vegetables.

Investments such as timer switches and solar panels had only been made by a few of the respondents, although loft insulation has been undertaken by the majority.

Actions Undertaken by local residents to reduce environmental impact:

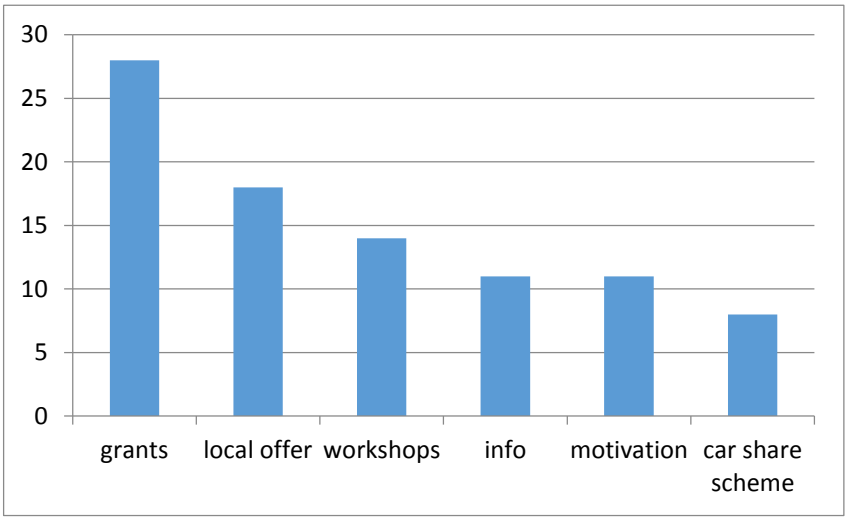


Q. At home what if any measures have you taken to reduce your environmental impact / save £ / increase your resilience?

Incentive to do more to reduce environmental impact

When asked what might encourage them to do more to reduce their energy consumption and environmental impact, nearly 30% said that local providers of goods and services to help them would be welcomed. This suggests a real business opportunity for entrepreneurs looking to service a ready market for both retrofitting and renewable energy generation.

Other options to help us become more environmentally sustainable selected by survey respondents from a list included; Grants 46%, 'how to' workshops 23%, more information 18%, car share scheme 13% and motivation 18%. Again these 'requests' suggest **an appetite for services that could provide local employment and business opportunities**.



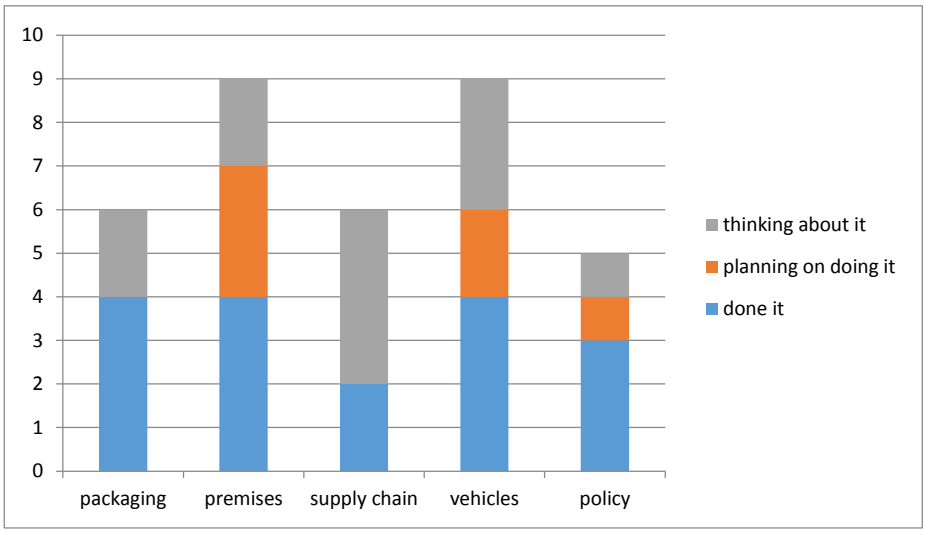
What might encourage you to do at least one more of the measures listed above?

Between 2009 and 2013 1800 houses across the whole of the High Peak installed additional insulation via the Warm Streets scheme. Whilst welcome, this represents perhaps 500 houses (less than 5%) in Buxton gaining one energy efficiency tool, whilst a portfolio of measures including behavior change have the potential to make a more significant impact.

Businesses

A sample of 18 businesses in Buxton responded to our on-line survey about their environmental impact. The most common change being considered by businesses to reduce their environmental impact / costs is changes to premises or vehicles, with half of respondents either considering or having made these changes.
Most of the respondents who have made changes have addressed a number of the areas.
22% have made changes to their packaging with a further 11% considering doing so.

33% either have or are considering changing some of their suppliers to shorten their supply chain and reduce the environmental impact of their operation. This could represent an opportunity for more new local suppliers which would in turn have added benefits for the local economy.



Has your business undertaken, or planning to undertake, any changes to reduce your environmental impact / costs?

A third of the respondents have not considered undertaking changes to reduce their environmental impact and a further 5 (28%) of respondents are still in the planning/thinking about it stage.

Things that will make local businesses more resilient to environmental/ economic change

Businesses were asked to list up to three things that would improve their resilience to changes outside of their control. A range of responses were given, the most common of which was related to maintaining or lowering taxes, particularly business rates. The other responses were:

- Improving opportunities for local jobs including for unemployed
- More investment in infrastructure including more housing
- Reducing energy costs
- Promotion of tourism in the town
- More people shopping locally
- More reliable communications
- End to best before dates
- Less bureaucracy
- Business support
- Financial support
- Informational support
- Increase level of business agility and flexibility
- UK assembly of products
- Support civic movements
- Trade fairly

Retrofitting & energy efficiency

One of the things we can do to minimise our exposure to energy prices is to ensure we use as little energy as possible. Wasting increasingly expensive limited resources makes no sense at all. Retrofitting our homes and commercial buildings with energy efficiency measures can reduce costs, carbon emissions and energy insecurity while maintaining an acceptable level of warmth and comfort.

With appropriate measures, the average home's heating and lighting usage could be reduced by up to 80%, as demonstrated in the Retrofit for the Future competition[29], with the remaining heat and electrical demand being met using renewables. The level of reduction is dependent on the type of investment in improvements and the types of systems that are being replaced.

[29] http://www.sustainablehomes.co.uk/blog/bid/206447/Oxford-whole-house-retrofit-reduces-CO2-by-over-80

Potential energy performance improvements

The Energy Saving Trust highlights a wide range of measures to reduce energy usage in buildings including:

Insulation	• Roof and Loft insulation • Draft proofing • Cavity & solid wall insulation • Windows • Floor insulation
Heating and hot water	• Boiler replacement • Thermostats • Solar water heating
Electricity	• Lighting • Smart meters

Bioregional[30], a charity that works to demonstrate the benefits of sustainable living, have created a tool to illustrate the potential savings associated with energy saving measures. This includes both 'light retrofit' measures (which pay for themselves within 20 years in terms of energy savings) and other measures which take longer to payback the value of the investment in terms of energy savings.

The 'light retrofit' includes measures such as improving insulation, upgrading your boiler or fridge, heating controls, radiator valves, and energy saving light bulbs.

Applying these 'light retrofit' measures to the housing stock in Buxton would achieve a 50% reduction in CO_2 emissions. The total cost of applying all of these measures to all housing in Buxton would be around £4,000 per household or £39.5m in total, and the energy saving at current prices would be £5.8m per annum. Therefore, it would take 7 years for the investment to pay for itself in energy savings, or less if the cost of energy rises.

So, using a conservative projection of just 1% of Buxton's 10,000 households (not including business premises) doing just the light retrofitting of their homes each year we could see nearly £400,000 invested and close to £60,000 per year saved in energy bills. As with food, if a proportion of that investment is spent with local suppliers who also source some of the materials locally, using the local multiplier effect the **light retrofit of just 1% of Buxton houses would be worth around £300,000 to the local economy each year[31].**

[30] http://www.bioregional.co.uk/

[31] Assuming 50% is spent with local firms and a local multiplier effect of 1.5

Scenario	% CO2 saved	Energy bill saving (£/yr)	Cost (£)	£/kgCO2e	Pay back period (years)	Remaining CO2 emissions
Light retrofit	50%	£5,800,000	£39,500,000	2	7	22,900,000
Full retrofit	85%	£9,700,000	£402,700,000	10	42	7,100,000

In addition to the light retrofit options, there are also retrofit investments that could save even more energy. These measures, such as installing double glazing and upgrading external doors, take longer to payback the investment but would help to reduce CO2 emissions by a total of 85% when combined with the light retrofit options. So, if 10% of Buxton households really upped their game with a full retrofit (at an average cost of £40,000 per dwelling) we would see over £40Million invested. If that £40M investment were made with local suppliers the multiplier effect means that **just 10% full retrofit of domestic buildings could represent £30M to our local economy**.

If we add public and business premises to this picture the potential economic and environmental benefits are tremendous.

In addition to retrofit investments, behavior change can have a dramatic impact on energy bills, for example turning the thermostat down by 2 degrees (e.g. from 21 to 19) in a mid-terrace house can reduce $C0_2$ emissions by 6.4%.

Local Retrofit Provision

In November 2014 there were 48 businesses within a 30 mile radius of Buxton listed under the category of 'Home Improvements' on the Derbyshire County Council 'Trusted Traders' directory. This is certainly not an exhaustive list, and it is not clear how many of them offer retrofit services or have the required skills, but it does indicate that our local businesses, including plumbers, glazers and solar equipment installers, offer a reasonable base on which to develop retrofit activities.

Our research indicates limited technical knowledge and retrofit skills amongst local tradespeople, suggesting there is a need to provide training and information to the potential providers for the market our study has revealed. There is perhaps an opportunity here for the skills funding available through N2D2 Local Economic Partnership to be utilised to increase and deepen the retrofit skills and knowledge in our area. The increased local skills base would allow for more local retrofitting which in turn generates a positive spiral of resilience.

One approach used elsewhere has been to help local firms to form a mutually supportive network, and create a strategy for growing this sector including re-skilling and building delivery capacity.

To help ensure we get as much of the supply chain as possible, there also needs to be research on materials and technologies that could be produced locally.

A sector-specific strategy needs campaigns to encourage home owners, renters and landlords to retrofit, and we need to have the financing mechanisms in place to help cover the costs.

Many of these activities can and should be done alongside similar things for the renewables sector, given they both address energy.

Renewables and the Economy

An abundant supply of relatively cheap fossil fuel energy helps make our current lifestyles possible; the Department of Energy and Climate Change (DECC) reports that in 2013 every UK resident uses about £2,100 of energy per annum[32]. This includes energy used for heat, light and power in our homes, as well as transport fuels, plus our share of the energy used in the commercial and public sector that powers the services and makes the goods we use.

However, monetary value alone does not account for its full costs. Climate change, ecological damage and biodiversity, social injustice and human health problems are amongst the additional costs that are 'externalised' from usual accounting methods and not reflected in the energy prices. The 'lifetime footprint' of energy use as well as other goods and services is harder to measure, but important to consider when exploring ways to restructure our local economy to be more resilient and sustainable.

National policy recognises our over-dependence on fossil fuels, and aims to redress the balance in favour of renewable energy production. Locally, this dependence also leaves us vulnerable to rising prices and supply constraints, and nearly all of the money we spend on energy goes to large companies located elsewhere.

The D2N2 Low Carbon Plan (Draft Autumn 2014) states that *"The low-carbon sector is currently of key importance to the national economy. According to the CBI (1) the low-carbon sector accounted for a third of the total economic growth in the UK during 2011/12 and overall it now accounts for nearly 10% of economic activity (1). In 2011/12, the sector was worth £122bn and has been growing at a rate of 4-5% throughout the economic crisis, since 2008. With almost 940,000 people now employed in the low-carbon sector, the industry is of greater national significance in terms of employment than the automotive or communications sectors.*

The UK is embarking on a fundamental transformation of its energy infrastructure with £200 billion of investment needed to rebuild the UK's energy infrastructure, much of which *is nearing obsolescence. In order to meet exacting C02 emission and renewable energy targets and "keep the lights on", over the coming decade, the UK must generate significant investment into renewing and innovating its energy infrastructure. The implications of these changes are;*

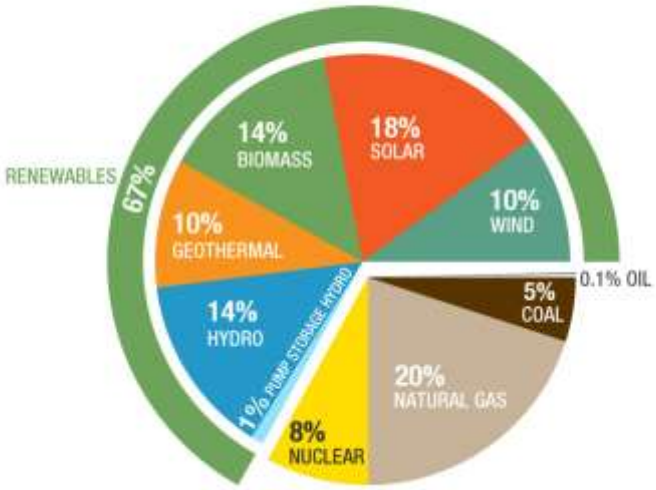
- *The UK's Energy mix will shift from fossil fuels, such as coal, to more renewable energy sources (wind, solar, marine, hydro-electric etc)*
- *Private-sector investment of £110bn will be accompanied by the creation of 250,000 jobs in "low-carbon goods and services sector"*

[32] https://www.gov.uk/government/statistics/energy-chapter-1-digest-of-united-kingdom-energy-statistics-dukes

- *Such a transition will create substantial business market opportunities relating to "creating, saving and storing energy"*
- *Greater opportunities for on-site and decentralized energy production and distribution with an increased range of energy generators*
- *An increased level of energy demand reduction in domestic and commercial properties to reduce the strain on capacity, creating new markets for smart energy and appliance systems.*

In addition low-carbon technologies will be at the forefront of profound changes in other aspects of daily life such as transportation. By 2040 virtually none of Europe's new cars will be powered solely by a traditional petrol or diesel engine. "Supply chains for the new technologies do not yet exist – strength in previous technologies is no guarantee of the same strength in future". Sustainable public transport will improve and increase in scale as efforts to decarbonise transport and create a model shift take place across the region.

Shift to renewable energy by 2050 as proposed by the Institute for Sustainable Energy Policies



Natural resource costs are rising. This is particularly impacting on carbon-intensive energy, food and logistics businesses. Amongst procurers, there is an increasing push towards resource efficiency, lower embodied energy and lower carbon alternatives in the value chain to limit cost risks, across all product classes and businesses.
The Public Services (Social Value) Act 2012 now requires consideration of social and environmental value, alongside economic consideration in many public contracts. This is a sea change towards sustainable procurement, meaning that there is both a benefit to the bottom line and a competitive advantage in winning contracts, for any business moving towards developing low-carbon products and business models."[33]

Potential for Renewable Energy Generation in Buxton & the High Peak

Pessimists may suggest that Buxton's northerly location and perceived lack of sunshine make the potential for renewable energy generation - particularly solar - low. However, using figures from WeatherEnergy[34] the World Wildlife Foundation Scotland recently published a report indicating that in October 2014 solar power and hot water generation performed well,

[33] Derby Derbyshire Nottingham and Nottinghamshire Local Economic Partnership (D2N2 LEP) Low Carbon Plan http://www.d2n2lep.org/lowcarbon
[34] (see http://www.weatherenergy.co.uk/)

despite the country's reputation for grey and misty weather. Scottish wind power alone generated an estimated 983,000 MWh of electricity - this is enough clean energy to power around 3,045,000 homes, and equates to 126 percent of the electricity needs of Scottish households.

In addition to the impressive statistics for Scottish wind power, they found that across the UK as a whole, wind provided 2,496,000 MWh of electricity, or enough to meet the needs of 7,736,000 U.K. households, or 28 percent. On a city-by-city basis in Scotland, solar PV produced between 30 and 46 percent of household energy needs. The same data source suggests that 14% of domestic electricity in greater Manchester was provided by solar in October 2014 with wind providing the energy needs of 212,000 homes in the northwest. There are also many other sources of renewable energy generation other than solar and wind, some of which are outlined below. There is clearly considerable untapped potential for the use of renewable energy generation across the UK, including Buxton and the High Peak.

According to DECC there are 67 recorded renewable energy projects at various stages of development across Derbyshire, with combined generating capacity of over 179MW[35].

- 17 are **operational** with a capacity of 21.5MW, the largest being the windfarm at Carsington Pastures.
- Another 14 **have been approved** and are awaiting construction or are under construction. These will increase the capacity by a further 40MW.
- A total of 11 have been **refused planning**, the majority of which are relatively large solar or wind projects, with a combined total of 55MW.
- The majority of the other projects (25) have either not made a planning application, or the application has been withdrawn. These projects have a combined capacity of 63MW. There are currently no outstanding applications in High Peak

Out of all of these projects, there are **4 renewable projects in the High Peak**, all of which are operational small hydro projects. All of the High Peak projects have been approved – 3 hydro in Tintwistle, 1 hydro in New Mills (where the local co-op buys all of the electricity) and 1 landfill gas project at Arden Quarry. Together these projects have capacity of 3.8MW (the majority of which is related to the landfill gas project which is still under construction. Although not on the Government's list of projects, Errwood Reservoir has a small hydro scheme of 150kW[36], which appears to be the only renewable project in Buxton.

With Landfill tax currently at £72 per tonne it is in our interest as tax payers to minimise the amount of waste that goes to landfill. Minimizing the waste produced in the first place is clearly important and something every business and individual can do something about; reduced packaging, use of cloth shopping bags, separating waste before disposal, reusing whatever we can, upcycling, and so on. Through Peak Waste[37] a large proportion of non-recyclable waste from the Buxton area goes to a waste-to-energy incinerator plant. Whilst probably preferable to landfill, incinerators have a considerable carbon footprint in their own right and remain controversial.

[35] https://restats.decc.gov.uk/app/reporting/decc/monthlyextract

36 http://www.british-hydro.org/installations/e/errwood_reservoir.html

37 see http://www.peakwaste.co.uk/waste-to-energy

Solar – A Nottinghamshire based specialist solar installer (who has no current or planned business interests in Buxton) using Google Earth has estimated that of the 10,000 houses in Buxton, there are between 2000 and 2400 with roofs facing the right direction for solar to be effective. The potential for commercial roofs is harder to estimate because it is difficult to know how many individual businesses are under a particular roof, for example a large industrial unit - is it one large business or several smaller ones? Bearing this in mind he estimates that 200 – 400 businesses are suitable. This does not include public buildings such as the Town Hall and Museum which also have solar potential. It is worth noting that much of central Buxton is a conservation area, where planning permission is required to install solar pv on a dwelling - in non-conservation areas they can be installed under permitted development rights.

Biomass – Wood-fuelled heating systems such as wood burners qualify for the Renewable Heat Incentive and could earn £2,325 - £3,690 per annum over 7 years if they have a back boiler.[38] The cost of these systems varies significantly. A new log stove can cost less than £2,000, while automatically fed pellet boilers can cost between £14,000 and £19,000. These systems can reduce heating costs by up to £650 a year if replacing an old electric heating system, although there is a need to have space to store sufficient logs or pellets.

Heat Pumps – heat pumps extract heat from the ground or air which can be used to heat radiators and water.

- Ground source heat pumps are possibly best for new build and semi-rural[39] due to the ground area footprint required. They cost of £11,000 - £15,000 to install, but generate income of £2,325 - £3,690 per year over 7 years through the Renewable Heat Incentive (RHI). These heat pumps could also provide annual savings to energy bills of up to £1200 a year compared with an old electric heating system.
- Air source heat pumps are suitable for a wider range of properties as they do not have the need for any ground area footprint. The typical cost is between £7,000 and £14,000. These generate between £805 and £1,280 through the Renewable Heat Incentive and can reduce heating bills by up to £1,000 a year compared with an old electric heating system.

Wind – There is obvious potential for wind to generate power in the Buxton area. Micro wind turbines that are fitted to a building typically cost around £3,000 and attract a feed-in tariff of 16p for every kWh of electricity produced for 20 years. Standalone turbines are more efficient, and the Peak District National Park Authority is now more flexible and sympathetic to the need for renewable energy generation than it was just a few years ago, and has relaxed their previous policy of no wind or solar installations within or within sight of the national park boundary. However, a single turbine on a dairy farm was turned down as recently as October 2014[40]

[38] http://www.energysavingtrust.org.uk/domestic/content/biomass
[39] http://www.energysavingtrust.org.uk/domestic/content/ground-source-heat-pumps
[40] http://www.peakdistrict.gov.uk/learning-about/news/current-news/wind-turbine-refused-to-protect-landscape-and-cultural-heritage

Anaerobic Digestion (AD) is a natural process where plant and animal materials (biomass) are broken down by micro-organisms in the absence of air.

1. The AD process begins when biomass is put inside a sealed tank or digester.
2. Naturally occurring micro-organisms digest the biomass, which releases a methane-rich gas (biogas) that can be used to generate renewable heat and power; this helps cut fossil fuel use and reduce greenhouse gas emissions.
3. The remaining material (digestate) is rich in nutrients, so it can be used as a fertiliser.

Many forms of biomass are suitable for AD; including food waste, slurry and manure, as well as crops and crop residues. However, woody biomass cannot be used in AD because the micro-organisms can't break down the lignin, the compound that gives wood its strength.

AD is not a new technology, it has been used in the UK since the late 1800s, but now an increasing number of AD plants are being built in the UK to generate clean renewable energy. AD is also used to treat the waste produced in homes, farms, supermarkets and industries across the UK. This helps divert waste from landfill.

The products of AD are referred to as biogas and digestate. Biogas is a mixture of 60% methane, 40% carbon dioxide and traces of other contaminant gases. The exact composition of biogas depends on the type of feedstock being digested.

Biogas can be combusted to provide heat, electricity or both. Alternatively, the biogas can be 'upgraded' to pure methane, often called biomethane, by removing other gases.

According to http://www.biogas-info.co.uk/ad-map.html there are currently no AD plants in the High Peak. This study has not researched the potential for AD in Buxton but the units can be small, odour free and generate on site heat and power. A leisure facility like the swimming pool and Pavilion Gardens complex in Buxton would, on the face of it, appear a potential candidate for this technology.

Hydro – taking a leaf from neighboring New Mills book, is there potential to use the hilly descent of the river into Buxton as a source of hydropower? Hydroelectricity is the term referring to electricity generated by hydropower; the production of electrical power through the use of the gravitational force of falling or flowing water. It is the most widely used form of renewable energy, accounting for 16 percent of global electricity generation – 3,427 terawatt-hours of electricity production in 2010 and is expected to increase about 3.1% each year for the next 25 years.

- Small Hydro - Small hydro with a generating capacity of up to 10 megawatts (MW) is generally on a scale serving a small community or industrial plant. Small hydro stations may be connected to conventional electrical distribution networks as a source of low-cost renewable energy. As small hydro projects usually have minimal reservoirs and civil construction work, they are seen as having a relatively low environmental impact compared to large hydro.

- Micro Hydro - Micro hydro refers to hydroelectric power installations that typically produce up to 100 kW of power. These installations might provide power to an isolated home or small community, or are sometimes connected to electric power

networks. There are many of these installations around the world, particularly in developing nations as they can provide an economical source of energy without purchase of fuel. Micro hydro systems can complement photovoltaic solar energy systems because in many areas, water flow, and thus available hydro power, is highest in the winter when solar energy is at a minimum.

There are a number of methods of harnessing the energy in moving water. A reverse Archimedes Screw (as in New Mills) between the weir in Ashwood Park and Morrisons could produce between 10 and 50 kw and there may be other locations with greater potential which have not yet been researched.

If a small number of households in Buxton install renewable energy systems in their houses there could be similar benefits to both the households and local business. Assuming a mix of solar panel PV, Biomass boilers, air source heat pump and ground source heat pumps the installation cost would be £340,000, bringing energy savings and income through grants worth £65,000 per year. Similar projections about the amount of work that could be undertaken by local firms[41] suggests that this could bring over £250,000 to local businesses each year.

Type of System	Cost per unit	Saving and income per unit[42]	Assumed number each year
Solar panel PV	£6,000	£770	20
Air Source Heat Pump	£12,000	£2,060	5
Ground Source Heat Pump	£15,000	£4,215	5
Biomass boiler	£17,000	£3,650	5

In addition to introducing renewable energy into the home, community renewable energy projects can also provide significant benefits. As an example, RenewablesFirst, a hydro and wind company provides estimates of the costs and benefits of different sized projects[43]. A 50kw hydro scheme as described above is estimated to cost around £330,000 to build earning 17.75p per KWh from the feed-in tariff (annual output is estimated at around 219,000 KWh) suggesting an income of more than £35,000 p.a. through the feed-in tariff as well as producing enough electricity for 50 homes. For these larger projects, there is quite a lot of work involved in feasibility, design, planning and construction so it would take 2-3 years to deliver.

Opportunities

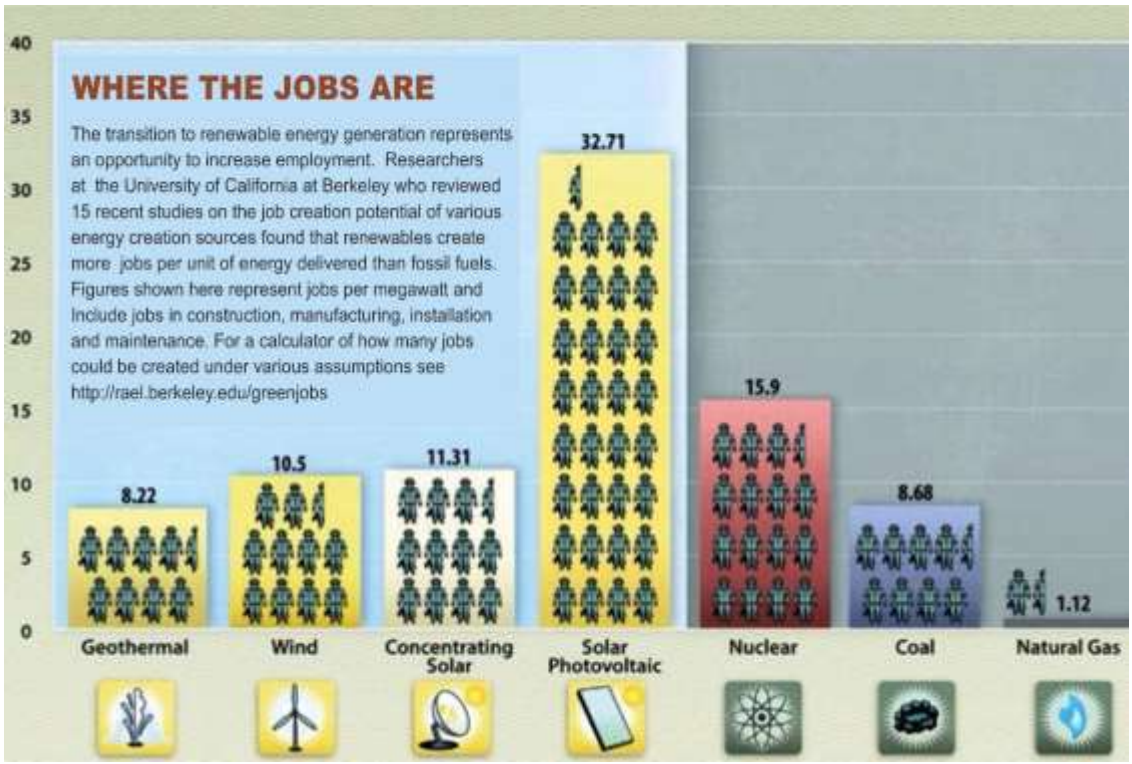
As with the retrofit sector, local enterprises need to be prepared to win the business and be qualified to do it, but this time in an already competitive market. We need to act now to take best advantage of current subsidy levels (see Appendix 4 Accessing Support for Renewables), and to establish a local energy generation infrastructure to increase our energy security whilst reducing detriment to the natural environment upon which we depend.

[41] 50% of installation work done by local businesses and a local multiplier of 1.5

[42] Costs and savings based on data on EST website http://www.energysavingtrust.org.uk/domestic/content/renewables

[43] http://www.renewablesfirst.co.uk/hydro-learning-centre/

We suggest that helping local firms to connect in a mutually supportive network could be useful (probably combined with the retrofit network suggested above). Then, ensure the right financing options and skills development resources are in place. As suggested by the extract quoted above, the development of green businesses, skills and infrastructure is supported by the D2N2 LEP (Derby & Derbyshire Nottingham & Nottinghamshire Local Economic Partnership) through whom funds are potentially available to subsidise some of this work. For D2N2 'Strategic Priorities & Areas of Economic Focus'[44]



There is evidence that some renewable energy generation methods, such as wind, hydro and Anaerobic digestion, provide the best return on investment when done at a scale supported by a group or cluster of properties and users. We would encourage the exploration of the viability of such projects in and around Buxton. This may be supported by a scheme to encourage the development of collective micro-generation projects at a neighbourhood level. The scheme is known as the Community Energy Grants & Loans Fund offering up to £20,000 grant for viability studies and then up to £130,000 loan to deliver the project[45].

More needs to be done to raise awareness, create demand, and increase local delivery capacity including;

- Publicity and public education campaigns to inform and encourage property owners and businesses to invest and take advantage of incentives. The Transition Buxton group may be able to assist and support this through local networking and communications although public bodies also have an important role to play here.

44 see http://www.d2n2lep.org/Strategic-Priorities
45 For more information see www.gov.uk/urban-community-energy-fund

There are courses available that may be worth exploring, including 'Communication Renewables'[46]

- It may also be worth watching for the results of De Montfort University's research into *'the role of community groups and local voluntary sector organisations in supporting householders to undertake energy efficiency measures'* due out in April or May 2015[47].

- Establish support **networks** for local individuals, groups and businesses who may wish to be part of collective or community renewable generation initiatives to enable economies of scale. A number of local clusters applying for feasibility study funding via the Community Energy Grants & Loan Fund mentioned above would be a good sign of progress. Would the Community Climate Action Network[48] be an appropriate partner to lead on this?

- Support the development of the local supply chain for renewable energy installations and servicing including research on **materials** and technologies that could be produced locally.

- Support for **skills** development in renewables and low carbon technologies to develop robust local supply and delivery. The Derbyshire Eco Centre near Wirksworth does offer some relevant courses but these are largely aimed at interested individuals for DIY rather than professional skills development and the location is not convenient to Buxton and the High Peak. The Local Enterprise Partnership, N2D2, can potentially provide funding support for skills development and apprenticeships. The data in this study goes some way to demonstrating the demand for the skills.

7. CONCLUSIONS

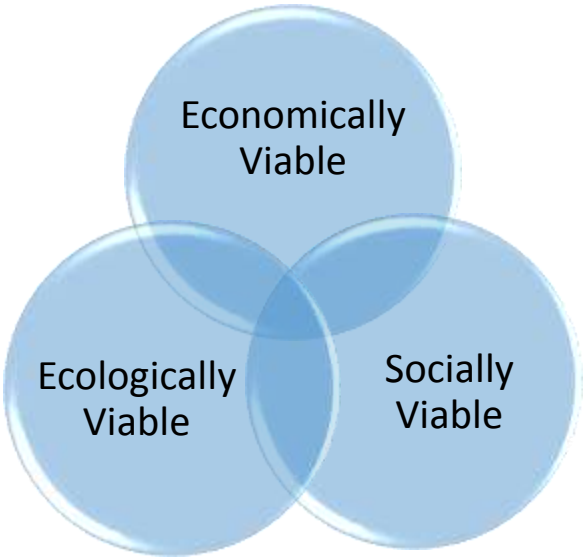
Ways to Wellbeing

We suggest the overall goal should be to maximise the wellbeing of all of our residents, and to do this in a way that uses and distributes resources fairly while respecting natural limits. Economic growth is welcome, certainly within the sectors identified in this project, but not at any cost.

What improves our wellbeing? One way of looking at this is using a set of human needs that are common to all of us. For example, the New Economics Foundation (NEF) suggests that 5 ways to well-being are: to connect, be active, take notice, keep learning, and give.

46 http://www.talkaction.org/training/communicatingrenewables/
47 http://www.dmu.ac.uk/research/research-faculties-and-institutes/institute-of-energy-and-sustainable-development/projects-content-pages/community-organisations-and-household-energy.aspx
48 Source: ccan@mea.org.uk

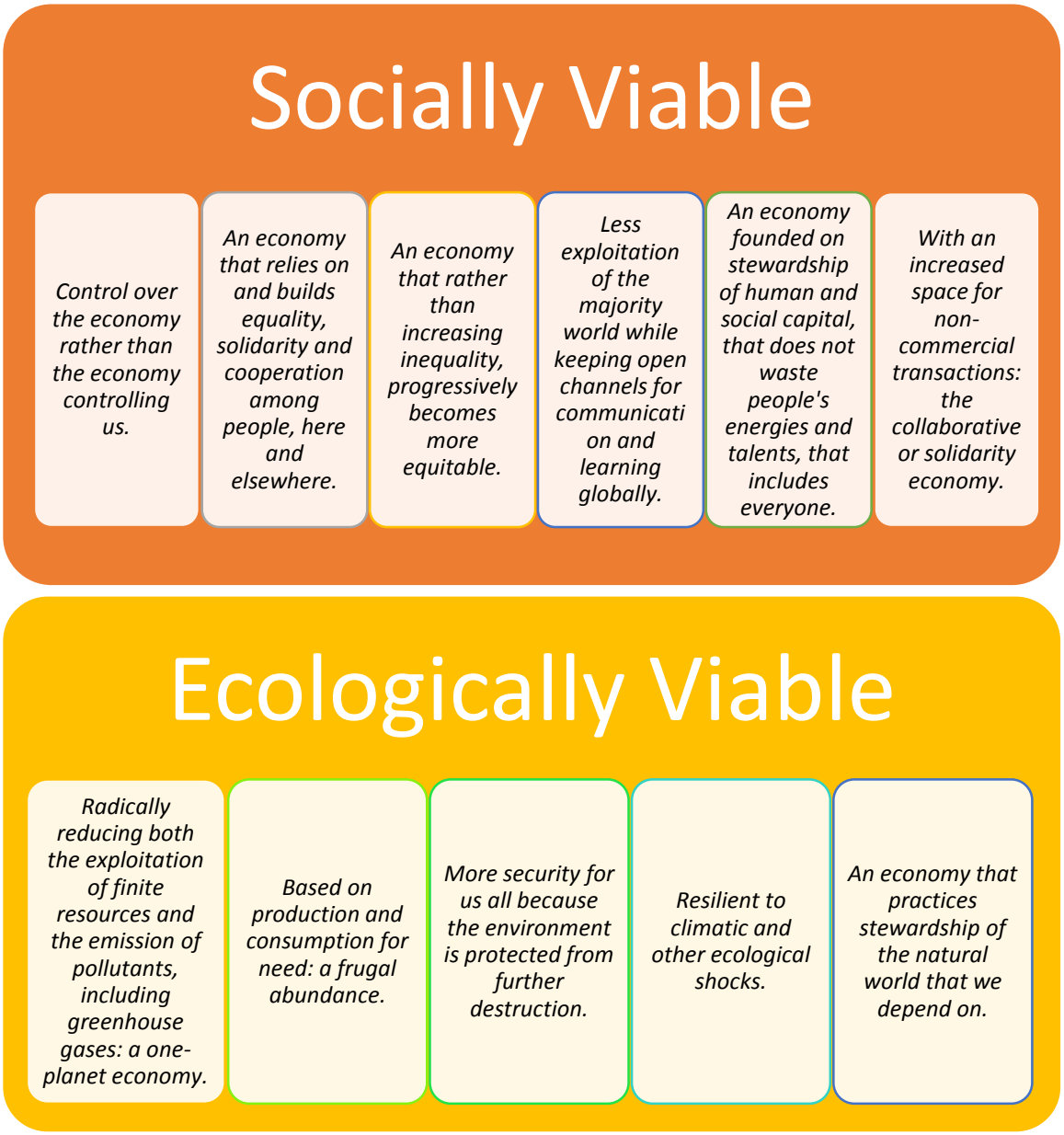
If we can develop our local economy so that provides jobs while being ecologically efficient, and meets as many of these 'ways to well-being' as possible, then we could develop something that meets our needs as people in a sustainable way. Although we have not explored volunteering and social care in this study, caring for those that need extra help in our community will bring some economic benefit to local enterprises too, but more importantly, we can find new ways and use other means of exchange to look after each other better, especially the most vulnerable.



We quite like the description of a viable economy that Manchester Steady State use in their recent report as detailed below:

Economically Viable

An economy that is resilient in the face of bubbles, crashes, supply chain interruptions and the whim of National governments.	*More money staying local and more democratic and local control over savings and investment.*	*An economy that delivers (and measures) what we need rather than growth for growth's sake.*	*A balanced economy without the hyper-development of some sectors (e.g. financial speculation, armaments).*	*An economy that does not have to keep expanding, although where some sectors will grow,(e.g. renewable energy) and some must shrink (e.g. fossil fuels).*	*Where needed investment comes from within rather than from exploitation of other peoples or as profit-seeking from external investors.*



The overall aim is to foster informed choices, changing habits, and consideration of the long term. This study hopes to contribute to local decision making and to stimulate activities that will increase our resilience and 'bouncebackability'.

A genuine opportunity to create a resilient local economy:

This report identifies a multi-million pound opportunity to create new jobs, grow new enterprises and help existing businesses to thrive. Through people-based, community-led, genuinely sustainable economic development, new livelihoods can be created. At the same time, this approach can help ensure we can feed ourselves, minimise our fuel bills and carbon emissions, and develop a real sense of community empowerment over local economic conditions. This work aims to bring together a coalition of local stakeholder organisations, anchored here in our community, to develop an economic approach designed specifically for

Buxton and the High Peak, and shows the value and importance of uniting to deliver real change.

A local Economy

If we develop more demand for local products and services, delivered by local independent businesses and using a supply chain closer to home, the benefits are not just economic but can also be seen in terms of community resilience. **Just developing 10% of this potential in food purchasing alone could contribute over £800,000 to our local economy per annum**. This is worth even more than its face value, as more of the money continues to recycle locally when it's spent on local things from local independent businesses (the local multiplier effect).

By re-localising the food sector, as much as makes sense, a significant part of the £32,632,000 spent by Buxton's 9,759 households each year on food and drink for home consumption could be spent on locally produced items. If every household in Buxton bought a couple of extra items a week from local sources (say £2 per week in a local store rather than a large supermarket) this would equate to an increase of around £1million to the local economy each year. Using the 2.5 local multiplier effect, this small shift in local shopping would mean **an increase of £2.5m per annum to the local economy.**

There is clearly even greater potential in the cafe and restaurant sector, and further potential again when visitor spend is taken into account.

This work shows how supporting our local independent businesses provides an excellent opportunity for our area. We suggest that: a local currency could be a valuable tool to retain more money in the local economy for longer, educating and enabling local businesses to supply each other, and collaborative enterprises including marketing and communications offer opportunities to increase our resilience.

This study has not looked into the potential for retaining local savings and investment by building on existing credit unions and the increasing prevalence of crowdfunding. With the return on investment through the conventional banking and stock market systems increasingly marginal and ethically dubious, there is a marked growth in alternative investment which we suggest should be explored.

Energy Creation and Use

The retrofit opportunity is a whole new economic sector just waiting to be developed. Estimates show this is **possibly worth £10Million in local economic value**. Using a pessimistic projection of just 1% of Buxton's 9,759 households doing just a light retrofit of their homes (not including business premises) we could see nearly £400,000 invested locally and close to £60,000 saved in energy bills. If half of that £400,000 is spent with local suppliers, using the local multiplier effect the **light retrofit of 1% of Buxton houses each year would be worth £300,000 to the local economy.** Applying these 'light retrofit' measures to the whole of the housing stock in Buxton would achieve a 50% reduction in CO2 emissions.

If 10% of Buxton households really upped their game with a full retrofit we would see over £4Million invested. If that £4M investment were made with local suppliers the multiplier effect means that **just 10% full retrofit of domestic buildings could represent up to £6M to our local economy**. If we add public and business premises to this picture the potential economic and environmental benefits are tremendous. We have not been able to explore this in any great depth here, but there are opportunities for much of this work to be delivered by local businesses. It will make many of our buildings better places to live and work and less expensive to run.

Developing our renewable energy assets presents another enormous opportunity that **could generate £250,000 worth of energy-related revenue each year to local businesses** and generate savings and income to householders of around £65,000 each year. In addition a community renewable energy hydro project could generate £35,000 p.a. through the feed-in-tariff and generate enough electricity for 50 homes. It also reduces CO2 emissions, improves our local energy resilience, reduces our energy bills and, if funded through local subscription can give residents and organisations ethical and profitable investment opportunities for savings and pensions.

the potential economic and environmental benefits are tremendous

Both the retrofit and renewable energy sectors offer a significant opportunity to invest in reskilling and develop the local supply chain, and in so doing deliver increased benefit to the local economy and improve our resilience to external influences. We believe that a good proportion of the new enterprises, investment opportunities and job creation that our area needs can arise from this kind of localised and interrelated approach.

A more resilient community

These three sectors are mutually reinforcing. We can feed ourselves, reduce our energy bills and stay warm, reduce our CO2 emissions, all while providing jobs and improving local livelihoods and strengthening our community. The implementation of these proposals would be a feasible 'starting point' in terms of moving towards resilience. Further initiatives should be explored, but in the meantime we can get on with building our capacity in the sectors explored in this study.

Next Steps & Actions

We present this work as evidence of the importance and potential economic benefit of green local economic development, which can address many of the financial, social and environmental challenges that we face. We see this study as a starting point for discussion, development, and shared action: a catalyst to promote genuine local involvement with, and support for the development of a more resilient and sustainable local economy.

We suggest it would be useful to build on or develop sector-specific mutually supportive business networks, with some level of overall co-ordination. Each network can then help shape the strategy for their sector, which may include further research as well as building the capacity of the local supply chain.

As mentioned earlier, a number of cross-sector activities need to happen as well. It's essential that support is provided for start-ups, new enterprises and existing businesses to help them see and take advantage of these opportunities. We also need to ensure that enough investment finance, of the right type, is available, along with appropriate work space, land and skills.

Finally, it appears that many other parts of our local economy could benefit from similar analysis and planning if resources are made available. Entire sectors may well have great potential, for example the development of a local finance and banking sector would offer many benefits including local jobs, but would also help unlock the financial resources of local residents and organisations which could be invested in the local area for a reasonable return.

We invite all interested local organisations, businesses and individuals not only to take individual action based on the information provided here, but also to get involved with collective and collaborative local networks for mutual benefit. This could include joining and supporting Transition Buxton, or one of the other groups who have supported and contributed to this study: Vision Buxton, Buxton Town Team and Buxton Civic Association.

Meanwhile, here are some practical ideas to consider for starting to change now:

<u>Residents and Residential Property Owners</u>

- Could you change some of your buying habits, and start to make choices that positively affect the future of the place you live?
- Could you get involved in a shared renewable energy scheme in your neighbourhood?
- Have you done everything you can to reduce the carbon footprint of your properties including insulation and an efficient boiler?
- Could you help seed fund small enterprises with your savings or self-invested personal pensions?
- Have you considered getting involved with Transition Buxton?

<u>Retailers and businesses</u>

- Could you source more of your goods and services more locally?
- Could you work with local producers to provide products not currently available here, but for which you know there is a market?
- Are you connected to other local businesses so that together, you can mirror the efficiencies of your larger competitors and benefit from mutual support?
- Have you explored your options for reducing packaging and product miles?
- Do your customers know what you do to support the local economy and environment?
- Are you using new technologies to maximum advantage?
- Would you consider accepting a local currency?

Landowners

- Could your land be used for renewables generation?
- If you own a brown field site could you encourage development there (rather than green field) by preparing the site?
- Could you enable those developing retrofitting or renewables skills to gain experience?
- Rather than simply selling off land to the highest bidder, could you take a longer term approach to help balance local infrastructure – such as building shared facilities, and / or energy efficient affordable housing, selecting local suppliers and builders, protecting food production and recreation space?

Commercial landlords

- Could you improve the energy efficiency of your buildings?
- Would you consider using your property to give start-up enterprises the 'right to try' on a low rent for an agreed term?
- Could you offer your professional expertise to help start-up enterprises?
- Could you give preferential rates or terms to local independent businesses?
- Have you undertaken or looked at existing research about the gaps between the local offer and needs so that you could target occupants who will contribute to the mix and increase resilience?
- Could you look at alternative means of exchange or a local currency for your rent payments (or part of them)?

Schools and colleges

- Do you encourage entrepreneurial and co-operative working amongst students?
- Could you provide specific training courses on retrofitting measures and renewable energy installation?
- Could you offer greater support to entrepreneurs?
- What about your own buildings - have you done everything you can to improve energy efficiency and install renewables - noting the educational elements of so doing?
- Has the Serpentine Project been given sufficient priority to ensure it achieves maximum potential?
- Can you develop food growing space in your grounds and encourage students to take an interest and develop their skills here?
- Do you take full advantage of the exiting local groups and networks to integrate your activities into the community?
- Have you considered a Fossil Fuel Divestment policy for your investments?

Local government

- Could your own procurement prioritise local sourcing in recognition of the increased value of the multiplier effect in supporting local economic activity?
- Can you provide increased support to local businesses and adjust your procurement requirements so they can tender more easily for public sector contracts?
- Is there more you could do to support community renewables schemes and projects?

- Would you explore the potential for an 'invest to save' opportunity to install an Anaerobic Digester system at Pavilion Gardens?
- Could economic policies, strategies and actions achieve a better balance between 'growth' and supporting a diverse resilient economy?
- Do you use your powers under the National Planning Policy Framework to ensure sustainable development, including the use of Neighbourhood Planning to designate 'low carbon' or 'small-enterprise-friendly' zones?
- Could you engender increased citizen engagement through things like Participatory Budgeting?[49]
- Would you investigate the feasibility of allowing people to use a local currency to pay some or all of their business rates and council tax?

Local Economic Partnership (LEP)

- How can the LEP, and the key national agencies operating in the area, actively promote the key economic sectors described in this document?
- Could you establish incubator units and offer seed funding to new local enterprises, particularly those that will contribute to a varied resilient economy whilst respecting environmental capacity?
- Are you able to provide funding for the local skills development requirements revealed in this study?
- Could D2N2's economic strategies achieve a better balance between traditional growth and local economic sustainability?
- Could you further strengthen the theme of support for low carbon small enterprises in your plans and policies?
- Can you use your influence at regional and national level to make the case for diversity and sustainability to be reflected in future policy and legislation?

Small changes can have big impact. We hope this report will provide information, evidence and inspiration for anyone interested in Buxton's long-term economic, social and environmental future. It is offered as a starting point in what we hope will develop into a long-term, meaningful programme of 'resilient renewal' based, at all levels, on local involvement and ownership of the process: shared action for a shared future.

[49] see http://pbnetwork.org.uk/

A cheerful disclaimer

We have every confidence in the factual information presented here, which is mainly publicly available data. Where we have then made assumptions and extrapolations we have tried to identify these clearly.

Some data are inevitably more robust than others, and all numbers should be seen as roughly indicative of the size of the opportunities.

See the detailed reports and appendix for each sector for full data sources and assumptions.

We are under no illusion that this study is exhaustive. There is potentially real value in further research which we hope this work will inform and encourage.

Appendices

The Appendices are separate documents available for free download from www.transitionbuxton.co.uk

1. Buxton On-Street Survey Results Spreadsheet
2. Buxton Business Survey Results
3. Why CO2 Matters
4. Accessing Support for Renewables
5. Bibliography & References for further reading