Herefordshire Economic Evaluation

Opportunities to grow our local economy

TEEconomy: establishing the potential of a transition enterprise economy

reconomy Herefordshire

re-imagining
re-viewing
re-creating
the local economy

REconomy Project

Herefordshire Economic Evaluation

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TEEconomy: establishing the potential of a transition enterprise economy

Executive summary

Herefordshire is feeling the effects of the economic downturn, along with the rest of the country. Climate change impacts and rising energy costs are further signs that the assumptions underpinning our current economic system need urgent review.

As a rural county, Herefordshire already has some degree of independence in its economy, especially in sectors such as food. Rather than sacrifice that in the pursuit of growth, we suggest that protecting and enhancing this economy is where our future lies. But how will this provide the jobs we all need to survive?

This report identifies a multi-million pound opportunity to create new jobs, grow new enterprises and help existing businesses to thrive. It's people-based, community-led, sustainable economic development that provides new livelihoods.

At the same time, it helps ensure we can feed ourselves, minimise our fuel bills and carbon emissions and provide safer refuge for our savings and pensions.

This project has looked at 3 key sectors and used publicly available data to compile a picture of what each sector could be worth to our county'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.

Food and drink

Up to £156m leaves our local food economy each year on products bought for home consumption, but imported from outside the county. The total figure could be as high as £310m if we include going-out and tourist spend. Diverting just 10% of the existing household spend would boost our local businesses by over £15m each year.

Retrofit

Domestic retrofitting activity could be worth £56m in insulation alone, and up to £150m for other basic measures. This will generate a significant number of jobs across the supply chain, and we need to maximise our share of these. Unlocking just 10% of this potential adds another £15m to our local economy.

Renewables

Developing our renewable energy assets could generate over £130m worth of energy-related income each year for householders and community investors. Building just 10% of this capacity adds another £13m into our county's economic system each year.

Developing just 10% of the potential could contribute around £43m to our county's economy each year - perhaps starting within the next 3 years if we make a concerted and co-ordinated effort. This is worth even more than this face value, as more of it continues to recycle locally when it's spent on local things from local independent businesses (the local multiplier effect).

While we do not suggest all of our needs could be met from within our county, we propose that what can be grown, produced or serviced here, should be, and the rest will be met by trade both national and global, as has always been the case.

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 county and we look forward to working with local organisations to turn this story into reality.

Background

What's resilience?

Resilience is about our ability to withstand and adapt to shock and change – what 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 want to build into our local economic system.

In the simplest terms, traditional economic development looks to create the infrastructure needed to attract large employers to an area, and encourages existing businesses to continually grow. While in the past such large companies have often provided a familiar almost paternal presence, when they close or depart they take not only jobs but also a sense of stability and certainty.

However besides 'big business' there is another economy alive here in our county, one that gives it some true resilience: a large web of independent, often family owned, small businesses.

The strength of a local economy is in these small businesses, but they are being buffeted by external forces which put them under pressure every day and they don't get the support from central and local government that larger enterprises enjoy. With ongoing economic turmoil, rising energy and food prices and unpredictable climate change impacts, we are living in increasingly uncertain times.

As it becomes more apparent that our current economic system is in trouble, we are also seeing more questions raised about what purpose it serves and who benefits from it. This is demonstrated, for example, both by the Occupy movement as well as more main stream commentators such as the Financial Times[1].

So in early 2012, as one of the 3 pilot areas in the national Transition Network's REconomy Project (www.reconomy.org), the Herefordshire in Transition Alliance's local Reconomy group initiated this work to see what could be done to help build the resilience of our county, and improve all of our wellbeing, through transforming our local economic system.

We suggest the overall goal of such a system 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 within 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[2].

If we can design an economic system that provides jobs and meets as many of these needs as possible, while being ecologically efficient, then we have the opportunity to develop something that meets our needs as humans in a sustainable way.

Approach

This project looked at the data which could show the potential benefits of this new kind of economy, through investigating the three sectors that play a fundamental role in our sustainability and resilience:

* Food – allowing us to be more in control of our food system;

* Retrofitting our houses – help us to live in warm homes with minimised energy bills; and

* Renewable energy – help us benefit financially from our own energy assets;

We used publicly available data and reports for Herefordshire, and areas within it, to pull together a picture for each sector – both as it is now, and as it could be. Each of the sectors above has a detailed report on which this summary document is based.

So far we have reviewed the findings with a small number of local organisations and experts interested in the sectors covered, and now with this summary report, we are releasing our findings for wider discussion and further development.

A cheerful disclaimer

While we have confidence in our numbers presented here, we have relied on publicly available data.

We have then often made a number of assumptions and extrapolations to fill in gaps.

Some of the public data appears more robust than others, and all numbers should be seen as roughly indicative of the size of the opportunities, rather than accurate.

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

Who is this report for?

The desired outcome of the Economic Evaluation project overall 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 Herefordshire. 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[3],[4] about the potential of community economic development to "redistribute economic power, reduce disconnection, inequality and vulnerability to economic failure[5]", and that it inspires others to undertake similar projects.

Why buying locally matters

Where do we spend money and where do the goods come from?

We know that money spent with local independent shops and businesses has greater local value than the same amount of money spent with chain stores and corporations. Why? 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 tax avoidance cases have also highlighted the additional societal costs of some corporate models. The trend towards internet sales generally excludes local businesses entirely, and do not even provide local wage inflows.

Let's take food as an example. Using data from nef, the Campaign to Protect Rural England (CPRE) suggests that spending £10 in a local food outlet is actually worth another £25 to the local economy, as it gets re-spent locally several times (a local multiplier of 2.5). They also report that local food shops can employ 3 times as many people for the same amount of turnover as a large supermarket[6]. 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.

In Herefordshire, spending money in local independent shops and businesses creates more jobs here 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.

What does local mean?

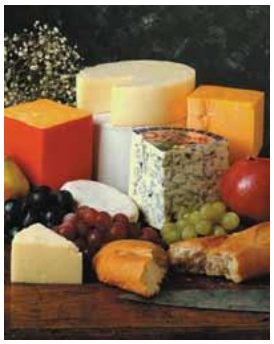
We use the term 'local' business to mean an independently owned enterprise operating mainly within the county area. For food, 'local' typically means it has been sourced within about 30 miles of the outlet.

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, to some extent though this will reduce for physical goods at least as fuel prices rise.

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 county, and that we are looking to stop the leakage of money that could be retained in our own economy, providing jobs and essential goods and services for local people, in a sustainable and equitable way.

The thinking is that this model is replicable elsewhere, so other places can benefit from increased economic resilience too, by strengthening their own local systems rather than overly relying on export (to places like ours!). We explore the theory of local economics more later.



In summary, **we propose that what could be produced and provided here 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 from that money being spent on local products.

The following sections summarise the opportunities in each of the three sectors, and we suggest that to turn these into reality, we need to do certain projects and enabling activities (some of which are already underway thanks to a number of organisations here). These will likely fall into the following categories:

Strategy, network and research
These projects would build a mutually supportive network of local businesses (e.g. for food related enterprises), and work with them to define a more detailed strategy within their own sector, based on the work started here. This includes further research especially around current gaps in provision of key products or services that could be produced/delivered locally.

Raise awareness and create demand
These projects would focus on different groups of people (consumers, public sector procurement officers, suppliers, schools, tourists etc.) to help spread understanding of the implications, and the potential power, of the shopping and sourcing choices we make. It will also look at how the infrastructure should change to make local shopping and sourcing easier (opening hours, access, parking etc.) and will address some of the myths such as that supermarkets are always cheaper.

Besides the sector-specific projects, there are a number of activities that would apply across all of them. These will help new and existing enterprises to take advantage of the opportunities, and ensure the required infrastructure is in place.

It is not within the scope of this work to define these projects in more detail – and clearly this work should be done in collaboration with a range of other organisations and businesses as discussed further later.

Food

A £156m opportunity to grow our local food sector

How did we do our calculations?

We have often used more than one data source to provide a figure. E.g. the total spend for the county is based on our 79,800 households multiplied by the Office of National Statistics' (ONS) data on average household spend for the West Midlands (£2, 932 pa). This was then verified and adjusted against numbers produced by Drivers Jona Deloitte for the county council.

If a single reference could not be provided, please see the detailed report for sources and assumptions used.

In the UK we import a large proportion of our food; the food production-supply ratio (which measures self-sufficiency) was 63% for all food in 2011, and 78% for foods indigenous to the UK, down from the 1989 peak of 78% and 94% respectively[7]. The value of these imports is around £34bn per year[8].

In addition to suffering from this decreasing demand, many of our small UK farmers are being forced into bankruptcy due to pressure for profits from powerful supermarkets, and their large scale processors, as highlighted recently by the NFU's SOS Dairy Campaign[9]. Globally, the UN warns of a looming worldwide food crisis in 2013 due to low grain reserves, extreme weather and rising prices[10]. The case for a more resilient and sustainable food system has never been stronger.

So what does our local food sector look like today, and how well do we support it?

How much do we spend on food and drink?

We are especially interested in how much money our households spend on food and drink today, either for home consumption or for eating out (catering) as this is our main local demand. It's also useful to know how much tourists spend when they come here. Our data indicates that **this total consumer spend here in Herefordshire is around £470m per year**, as shown in figure 2.

This includes about £237m of household spend in supermarkets and other retail outlets, £123m spend on going out or catering (restaurants, cafes, bars etc.) plus tourism-related expenditure; a report for Herefordshire Council in 2011 suggested that £110m per year is spent here by tourists[11], mainly on eating out, but this also includes some self-catering spend in our food outlets.

We have excluded non-household consumption, for example wholesale trade, public sector procurement and large business spend are not included in our analysis due to resource constraints.

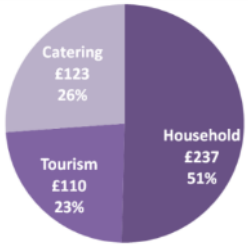


Figure 2 Breakdown of £470m of consumer food and drink spend by category. Spend is in £m.

From where do we buy it?

We estimate that the top five major supermarkets in Herefordshire account for between 71% - 83% of all household expenditure on 'brought home' food and drink, or up to £180m annually. In addition, around £30m per year is spent in the smaller 'chain' supermarkets.

Major supermarkets

Morrisons, Tesco, Sainsbury, Somerfield/Co-op, Asda

Smaller supermarkets

Marks & Spencer, Lidl, Aldi, Iceland, Farmfoods, Londis, Nisa and Spar. Some of these, SPARs for example, are locally owned franchises.

Local production

It is said that with the exceptions of olives and citrus fruit, there is nothing that can be grown anywhere in Europe that cannot be grown in Herefordshire.

Recent examples of changing patterns of production and supply include the development of local asparagus under plastic, high-end vegetable crisps and vodka.

While this figure likely includes some locally owned franchises such as the Spar, the available data does not indicate their likely share of the revenue. This suggests that the remaining proportion, which varies according to data sources, is spent in our local independent stores per year. **The data implies this true 'local spend' figure could be around 16%** of the total.

How much of it is produced here?

To re-cap, the opportunity is to increase the economic benefits to the county that come from money being spent with local independent businesses, and from that money being spent on local products where possible. So now we turn our attention to the local supply chain to see how much of this is met from within the county.

While public data in this area is very limited, a useful report on local food webs by the Campaign to Protect Rural England (CPRE) found that nationally, around 31% of the total consumer spend is on products from the local area (up to 30 miles)[ibid]. Work conducted by CPRE in Ledbury[12] found the figure to be slightly higher at 34%.

If we take this higher figure as more indicative of our county overall**, this implies that maybe about 66% of all of our food and drink spend, certainly relating to products bought for home consumption, goes on products imported from elsewhere** in the region, the country or the world.

The national CPRE report also suggests that nationally, the main supermarkets turnover that relates to local products is only 0% - 4%. We also know that according to recent research, locally-sourced produce accounts for no more than 10% of sales at two large regional wholesale markets (Birmingham and Wolverhampton)[13].

Clearly there's great opportunity to reduce our reliance on food and drink produced from elsewhere.

What's the opportunity?

For the household spend category alone, this importing of non-locally sourced food products equates to around £156m of money leaving our local economy each year (and a more conjectural figure of £310m if we include catering and tourism categories).

In terms of where our residents shop for food and drink, if 16% (or £38m of £237 household spend) is spent in local independent outlets – albeit on local or non-local produce - then this implies the remaining £199m leaves our local economy.

Figure 3 shows who benefits from local spend and sourcing decisions in the Herefordshire food economy at the moment. The lightest green areas of the charts show the size of the opportunity to re-localise this sector and increase the benefits to our community. The benefits are maximised when we both source and spend locally.

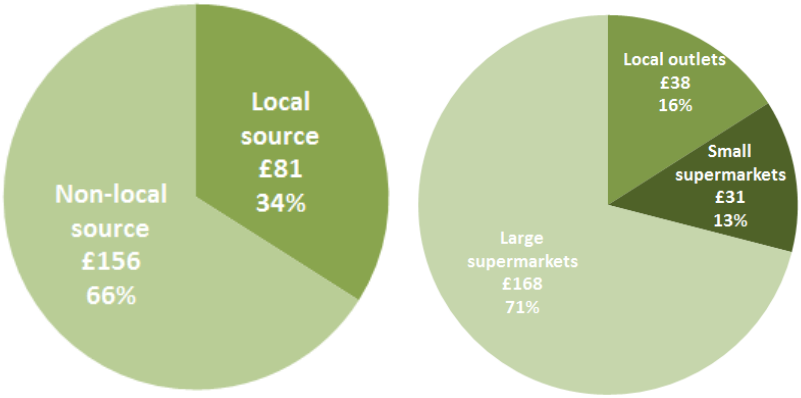


Figure 3 Amount of money spent on local/non-locally sourced food and in local/non-local retailers. Spend is in £m and relates to household spend on products for home consumption.

Current picture

In Herefordshire, we estimate there are around 2,600 – 3,600 businesses that operate in the food and drink sector, including agriculture.

They employ at least 18,500 people or 21% of the total workforce (nearer to 30% if we include casual labour and self-employed).

The Gross Value Added by this sector is around £607m per year, or 22% of the total GVA for the county.

Other benefits accrue from increased levels of local spend. CPRE stresses that local food outlets are particularly important as sources of employment as they support three times the number of jobs as the main supermarkets, for the same amount of retail spend; this effect continues down the supply chain, for example, producers involved in the local food economy employ on average 3.4 full-time workers compared to the regional average of 2.3 per farm.

The same report also found that local food outlets offer direct and indirect markets for micro and small producers that are unlikely to be available through the distribution channels of supermarket chains. This enables more start-ups and micro businesses to participate in the local economy.

Re-localising much of our food economy will also lead to a reduction in food miles, support the quality and character of our area and build closer social connections between businesses and their shoppers.

Turning the opportunity into reality

Some work is already underway to re-localise our food economy. For example, a powerful recent report from the Herefordshire Food Partnership in 2011 "From Field to Table: A Sustainable Food and Drink Strategy for Herefordshire"[14] outlines as one of its six themes "The dynamism and sustainability of the local economy".

It details the related aims, objectives and indicators as well as a comprehensive set of steps towards growing the local food and drink economy. A county-wide consultation that asked "What are the priorities for developing the 'Local Food Economy' in the County?" gave results as shown in figure 4 below.

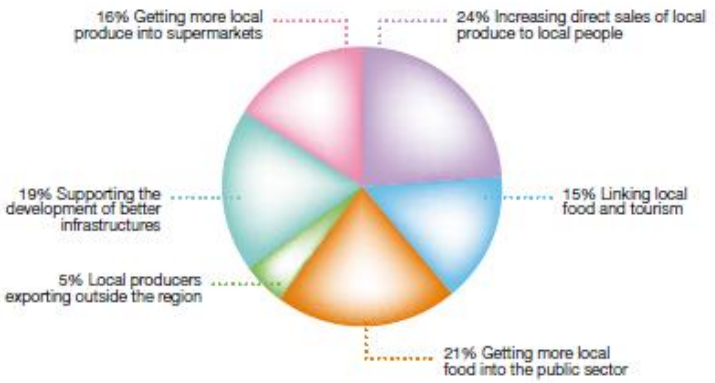


Figure 4 What are the priorities for developing the 'Local Food Economy' in the County? Reproduced from the Herefordshire Food Partnership Report, 2011.

What about the issue of pricing?

Despite the perception to the contrary, local food is often cheaper than the supermarket alternatives especially seasonal fruit and veg.

Where this isn't the case, we appreciate that while some people are willing and able to pay more for local food, this isn't possible for everyone.

One of the aims of this work is to ensure that everyone in our community can access local, reasonably priced, fresh, quality food including those on the lowest incomes.

Another is to ensure that everyone understands the true costs and consequences of purchasing 'cheap' imported food from chain stores.

We suggest that the food-related economic estimates presented here in our own work should be used to help set these priorities to ensure the greatest financial benefits accrue to our own enterprises and residents. For example, "getting more local produce into local independents" is not mentioned here as a priority, and yet we have shown that the greatest benefits arise from local sourcing and local outlets combined.

We also advise careful consideration of the outcomes of working with the national players. For example, increasing local produce in the supermarkets can lead to a negative environmental outcome, as most large supermarkets still process local products through their national packaging and distribution centres. The same products can be available in local greengrocers for example, unpackaged and having travelled only a small distance, often with a cheaper price. And only through this local retailer do the local multiplier benefits fully come into play.

One of the objectives is stated "to encourage retailers to stock and promote more lines of locally sourced products". We would like to see this re-worded to clearly state priority for nurturing and supporting **local independent** retail outlets to maximise the opportunities we have identified.

To this end we suggest additional follow-on activities and projects could include: strengthening the networks of local food businesses, including retailers and work with them to develop a more detailed strategy for this sector; conduct research into requirements for local processing facilities; conduct research into food gaps – what are the needs, what's produced/grown here now, what used to be, what could be; conduct a series of targeted campaigns will help raise awareness of the importance of spending with local retailers and products where possible, helping to create demand; and explore infrastructure changes that will make it easier to shop local – parking, opening hours, co-location etc.

At the same time, we need to start strengthening and growing the local supply chain so it can meet this growing demand over the next few years. We need to nurture and support new enterprises as well as existing businesses if we are to take best advantage of the opportunities shown here

Retrofit

A £150m opportunity to warm our homes

Why retrofit?

"Retrofitting domestic buildings offers an effective way not only of decreasing carbon emissions but also of reducing overall energy demand.

With appropriate measures, the average home's heating and lighting usage could be reduced by 80%, with the remaining heat and electrical demand being met using renewables.

The nation's building stock could be transformed from among the worst in Europe to a position of leading the low carbon economy."

Zero Carbon Britain, 2030.

Overall, the price of energy is on the rise. 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.

Meanwhile, the global demand for energy is growing thanks to developing economies like China, leading to more competition for the remaining resources. Political instability in energy-rich regions adds further supply squeezes, and price impacts.

The Herefordshire Healthy Housing Survey[15] (HHS) tells us the average annual cost of energy in a county home is £1,103 although there are wide variations; for those built before 1919 it's £1,800 and those built after 1965 it's £870 pa. The cost of heating, lighting and powering our homes and businesses is predicted to continue to increase[16]; at the same time, we know we need to cut the amount of fossil fuel energy we use in order to reduce our climate change impacts.

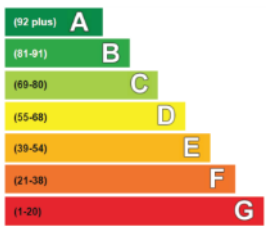
One of the things we can do to minimise our exposure to energy prices, and reduce our carbon emissions, is to retrofit our homes with energy efficiency measures. This helps ensure we use as little energy as possible, while maintaining a reasonable level of warmth and comfort. This section explores the economic potential of this retrofit work on our homes in Herefordshire.

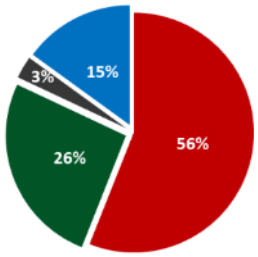
How energy efficient are our homes?

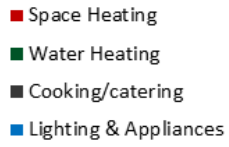
The most widely used method for evaluating energy efficiency in homes is the Standard Assessment Procedure[17] or SAP, which can be mapped to the Energy Performance Certificate (EPC). It's a simple to read graphic with colour bands representing levels of energy efficiency as shown on the left, with 'A' and higher scores being best.

The HHS tells us there are 82,521 dwellings in the county and at 58.1, Herefordshire now scores 3.6% higher than the national SAP rating of 54.5. This is an improvement from 52.0 in 2005, and there are more properties in EPC bands B and D than average as reproduced in figure 5 below.

SAP/EPC ratings







UK domestic energy consumption by use, Zero Carbon Britain 2030 (2010 data).

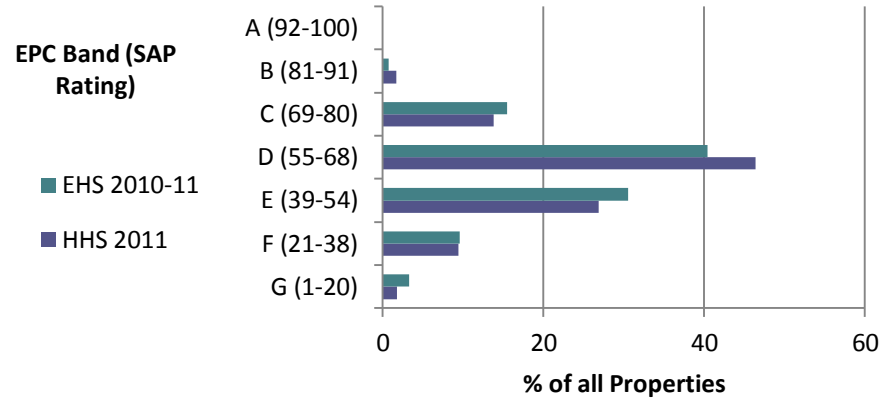


Figure 5 EPC & SAP ratings for homes in Herefordshire (HHS) vs England (EHS).

However with a Sap of 50 or less, homes in the more rural areas tend to fall below the norm and detached houses tend to score worse overall. A significant number of our properties, 23% fall below SAP 55 and nearly 10% below SAP 35. Given a SAP rating of under 35 is generally accepted as a proxy for the likely presence of a Category 1 hazard from excess cold according to the Energy Saving Trust[18], there is much scope for improvement.

The housing stock is also well below average in terms of access to cheap, efficient mains gas as only 69% of our properties have access compared to 87% nationally.

The EST report also states that there's a connection between higher SAP ratings and availability of mains gas as illustrated in figure 6 below.

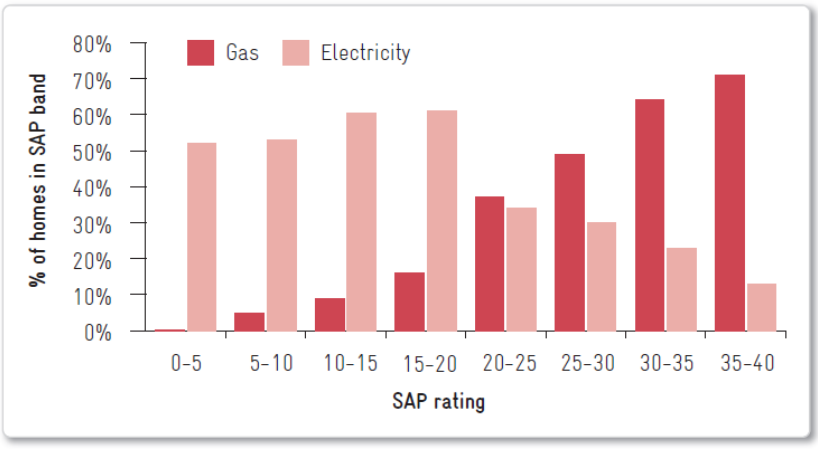


Figure 6 From "F & G Banded Homes" by Energy Saving Trust, 2010.

What's the opportunity?

The goal of an energy 'retrofit' as we use the term here is to make the home consume less energy for space and water heating. Nearly every home can be made more efficient, but there are practical constraints defining the upper limit for most dwellings including the condition of the property (age, design, materials, state of repair, siting and so on) and of course, there are behavioural and financial considerations.

Based on the current condition of our housing stock and estimated costs per measure (measures as shown in figure 7), HHS suggests the cost of installing these measures in the homes that need them is in the region of £143m.

Recent work for a large funding bid[19] looked at loft insulation, cavity wall insulation and solid wall insulation and produced some different figures for the number of homes needing these measures; i.e. they saw nearly double the demand for cavity and solid wall measures, but about a quarter fewer lofts needing insulating. These adjusted demand figures are shown in figure 7.

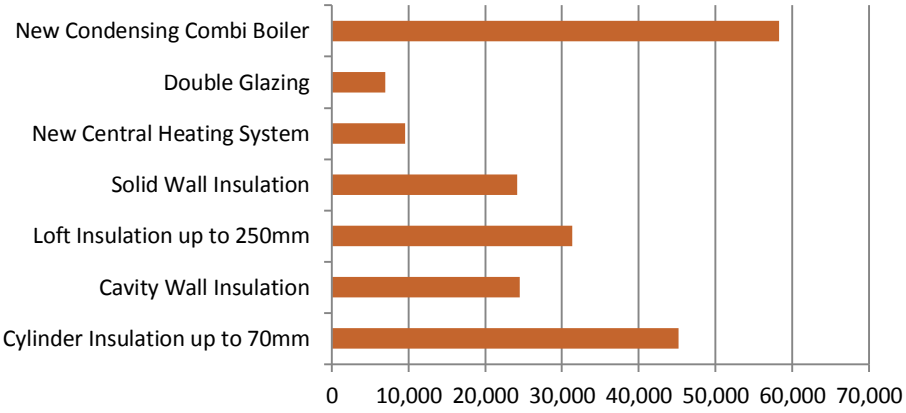


Figure 7 Number of homes potentially needing each measure.

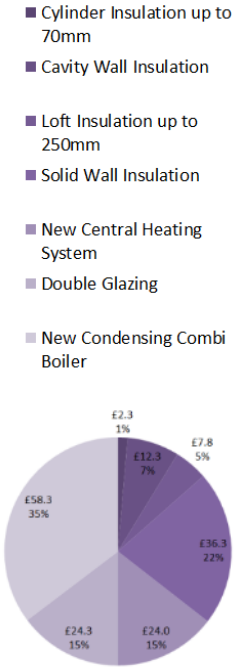


Figure 8 Summary of cost of measures and % of total cost.

Local innovation

High-performance industrial insulation materials are manufactured in the county, while companies making sheep's wool and recycled insulation have a foothold alongside specialists in solar, hydro and wind.

If we apply this revised demand to the likely costs per the HHS report, then the total cost is around £165m, broken down in figure 8. As it's unclear which data is more accurate, **we are using a rough mid-point of £150m for our potential sector size** based on the data we have been able to access at this time.

Where there is a clustering of properties with similar energy problems - over 80% of the properties in Mortimer locality lack mains gas for example - this opens opportunities for a community-based approach to procuring appropriate energy retrofit measures and services.

Turning the opportunity into reality

Local innovation

There's already a well-established local manufacturer of "innovative low-carbon solutions for the heat transfer market including heat recovery, thermal storage and heat pumps".

Another local company makes high-performance roof and wall panels for new housing and another is developing plans for the manufacture of entire passivhaus housing units.

Besides stimulation of consumer demand, a key enabler for this new market will be the finance mechanisms that help with affordability and cash flow for those that can't afford to pay in full up front. The Government's recently-launched Green Deal[20] aims to help finance the installation of energy efficiency measures, with repayments based on predicted savings and tied to the bill not the person. Grants should also continue to improve affordability for those on low incomes.

While not without its critics, the Green Deal provides a better set of tools to drive domestic retrofitting than we have had to date, according the Centre for Sustainable Energy (CSE)[21]. However, it's not clear that the Green Deal (which requires certification for nearly all parts of the value chain) as designed will benefit local small building companies and related trades, who currently do 95% of Britain's general housing refurbishment.

Our current businesses such as plumbers, glazers and solar equipment installers, and other construction related trades appear to offer a reasonable base on which to further develop retrofit activities, though not all are locally owned, and it's not clear how many of them offer retrofit services or have the required skills today.

These local firms need to be ready to meet the requirements of the Green Deal and be prepared to win the business and be qualified to do it, in what will likely be a competitive market.

One approach could be 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. This 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.

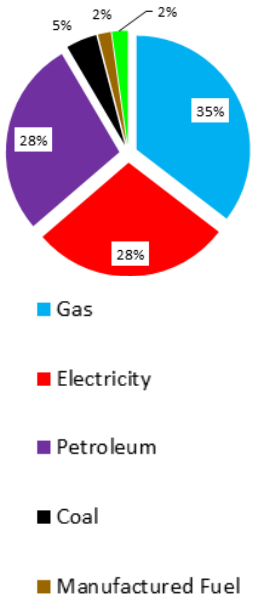
To help ensure we get as much of the supply chain as possible, there needs to be research on materials and technologies that could be produced locally and some local companies are already working in this field, raising the question how best might such innovation best be leveraged? Many of these activities can and should be done alongside similar things for the renewables sector, given they both address energy.

A foreseeable problem with developing the retrofit economy will be the overlap between circumstances of greatest need and vulnerability, with least ability to invest. Preferably, the selection of retrofit measures appropriate to Herefordshire will reflect a proper consideration and identification of areas of greatest need and greatest benefit in terms of both people and properties.

Renewables

Opportunity to generate £130m worth of energy per year

Figure 9 Herefordshire fuel mix 2009.



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 every UK resident uses about £2,100 of energy pa[22].

This includes energy for heat, light and power in our homes, transport fuels plus our share of energy used in the commercial and public sector that powers the services and makes the goods we use.

However, this monetary value does not account for its full costs. Climate change, ecological destruction, social injustice and human health problems are some of the additional costs that are 'externalised' from usual accounting methods and not reflected in the energy prices.

National policy recognises our over-dependence on fossil fuels, and aims to redress the balance in favour of renewable energy production[23]. Locally, this dependence as shown in figure 9, 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 far outside the county.

However, our area contains abundant clean and renewable energy resources. Local investment in these assets will reduce our carbon footprint, increase our resilience, provide relatively reliable investment opportunities and provide a significant boost to the local economy.

The current energy picture

If Herefordshire conformed to the national average for per capita expenditure on energy, then across domestic, commercial and industrial sectors (excluding transport) the county's expenditure would total around £195m pa.

However as it is sparsely populated with 22% more households off gas-grid than the national average, there are good grounds to believe that the county's energy costs are closer to £227m at current prices. Half of this figure relates to electricity as shown below in figure 10.

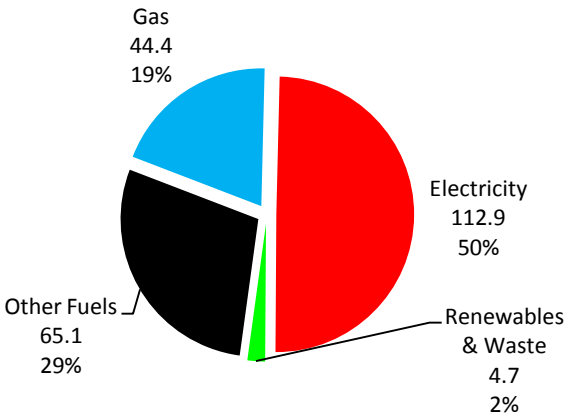


Figure 10 Herefordshire estimated energy expenditure by type in £m, 2011 (excluding transport)

Across domestic and commercial/industrial sectors (excluding transport) in 2009 Herefordshire consumed 3.5 TWh (terawatt hours) of energy; domestic consumption accounted for 43% of this and industrial/commercial the remainder. The county is in the highest band nationally for use of 'other fuels' (not gas or electricity) which totals 1.2 TWh annually; 82% of this is petroleum based i.e. heating oil and LPG.

Only 2% of the county's energy consumption was drawn from renewable sources (including wastes); 44% of households are off-gas-grid and - along with electric night-storage - rely on use of 'other fuels' principally petroleum.

In keeping with the national picture, local energy supplies are highly dependent both on fossil fuels (78%) and on importation (36%), so that present consumption is insecure and unsustainable. Local energy consumption reveals particular vulnerability in two related areas: properties (including businesses) which are off-gas-grid; and reliance on petroleum by the industrial/commercial sector especially.

What's a GWh?

According to Ofgem a gigawatt hour could provide all the electricity for 300 homes for a year, or the heat for 49 homes.

1 TWh = 1,000 GWh.

1 GWh = 1,000 MWh.

1 MWh = 1,000 kWh.

What's the opportunity?

Across a range of five immediately-viable renewable technologies as outlined below, and with some conservative assumptions, we estimate **Herefordshire has the potential to generate around £130m of energy-related revenue per year**. This equates to over half of the county's present annual spend on energy (excluding transport).

The 'local multiplier' effect means that if this revenue was spent and circulated locally, its value to the local economy would be significantly increased.

At the same time, 1.3 TWh (terawatt hours) of renewable energy would be produced. This is over a third of the county's energy consumption – the relevant wind, solar and biomass technologies are explored further below.

Wind

There are no large scale wind turbines currently operational in Herefordshire, but according to the Hereford Renewable Energy Study (HRES)[24], there's a theoretical capacity for up to 174 x 2.3MW large-scale turbines in the county plus a considerable number of medium and small scale turbines.

Local benefits

Renewable UK maintains that research conducted in partnership with DECC "has shown that for each installed megawatt of wind power, around £100,000 stays in the community during the lifetime of a project."

Here this implies £20m of long-term investment into the local community and the local economy.

Taking a more conservative estimate of 27% of this potential being practically viable due to planning, site, access and other constraints, this implies a total generation potential of 453 GWh **with a value of over £56m pa at current price/subsidy rates** from the Feed in Tariff (FIT) and Renewables Obligation Certificates (ROC). This value is more than the annual domestic spend on electricity in the county today, and is based on a mix of large, medium and small scale turbines as shown in figure 11.

Scale	MWh/yr	ROC/FIT *	Subsidy £m	Price/tariff **	Wh'sale value	Total £m
Large	354,227	£40.71	£14.42	£40.00	£14.17	**£28.59**
Medium	45,426	£0.21	£9.36	£0.03	£1.45	**£10.81**
Small	53,299	£0.28	£14.92	£0.03	£1.71	**£16.63**
	452,952					**£56.03**

*ROC is per MWh for large scale wind, FIT is per kWh for other wind. ** Wholesale price paid to large wind generators; export tariff paid to smaller generators via FIT.

Figure 11 Herefordshire wind generation – practical capacity and value.

Solar

While Britain is blessed with abundant wind resources, it is not known for its sunshine. Nevertheless, Herefordshire has enough sunshine to make solar photo voltaic (PV) and domestic solar thermal (solar water heating or SWH) important parts of the renewable energy portfolio. HRES estimates that if we take just 20% of the potential solar PV roof-mounted capacity in the county (25% for new home builds), including domestic, commercial and industrial, then this could generate 12.3 GWh of electricity each year. **This is worth over £2m pa in income** to the system owners be they householders or businesses as shown in figure 12. Domestic **solar thermal could contribute another £700k pa** to this total based on gas savings and Renewable Heat Premium Payment.

	Potential installs	MWh/Yr	Total FIT £	Total Export £	Total £m/yr
Domestic PV	1951	3316	£512,052	£74,619	**£0.59**
New builds	2250	3825	£590,580	£86,063	**£0.68**
Commercial	436	1982	£277,282	£29,433	**£0.31**
Industrial	353	3207	£448,659	£47,624	**£0.50**
	4990	**12330**			**£2.07**

Figure 12 Herefordshire solar PV generation – capacity and value of 20% of potential (25% for new builds).

Biomass

Herefordshire enjoys considerable biomass potential, including forest residue, waste wood, animal waste, and the potential for growing energy crops. All these fuel sources would require development of appropriate infrastructure to fully realise their potential.

Local benefits

A Carbon Trust case study showed that 37% of the cost of commissioning a 750kW biomass boiler as part of a sawmill operation could stay in the local supply chain (some £246k).

Based on information in the "Herefordshire Woodfuel Supply Chain" report[25], HRES estimates that the potential energy value of forest residue, waste wood, miscanthus and short rotation willow is around 871 GWH per year. This is using realistic deployment targets for energy retrieval of between 5-70% depending on the biomass. Note that we have excluded energy crops such as maize that would require food production quality land, and focused instead on willow for example, that can be grown on less precious terrain.

There are several additional biomass resources that could also be developed, such as animal waste, landfill gas and so on, which could eventually produce about 64 GWh pa of heat or electricity. Other options include recovering energy from municipal and commercial waste streams, which can be used as feedstock for advanced thermal processing systems e.g. pyrolysis or gasification.

If we assume that the forest residue and wood waste would be processed into wood chip, that miscanthus and SRC willow would be processed into pellets, and that all of this fuel would be combusted for heat in biomass boilers, **we estimate that the potential retail value of wood chip and pellet fuel processed from local resources would be worth over £31m per year**.

The Renewable Heat Incentive would contribute a small tariff per kWh of heat generated by this fuel, if used in a qualifying system. We estimate **this incentive would provide an additional £40m pa of income** to the system owners.

What are the likely development costs?

We estimate that the cost of installing the 'practical' level of capacity outlined above totals some £909m. As shown in figure 12 below, this includes: £513m for the installation of 4,251 wind turbines including some healthy contingency; £366m for the installation of biomass boilers; £21m for 5,000 solar PV systems across domestic and commercial; and £9m for 2,000 domestic solar thermal systems. The payback period is shorter on some technologies than others, in some cases less than 10 years.

Clearly we have made a large number of assumptions throughout this section and the numbers should be seen as roughly indicative only.

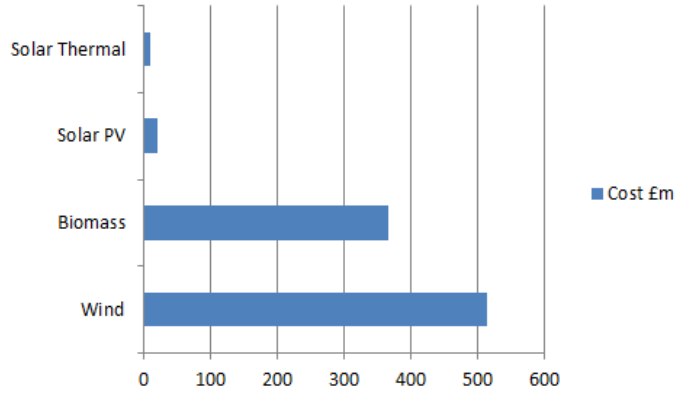


Figure 12 Estimated cost of development by technology. Excludes development of wood chip/pellet capacity.

Local jobs

We estimate that 1,200 new sustainable full-time-equivalent jobs would be created.

In the construction phase thousands of additional jobs would also be created: estimates suggest about 3,000 for biomass construction alone.

Training programmes will be required to 're-skill' the county's youth and its workforce, which will in turn support or create jobs in education and in businesses that have the necessary know-how.

Turning the opportunity into reality

Contributing only about 2% to employment and 2% to GVA, the energy industry in Herefordshire is at this point hardly existent. However, a nucleus of renewables companies form the beginnings of an industry that has potential to grow more robust under the right conditions

Realising the opportunities outlined in this section could create a renewable energy revenue stream worth £130m pa. By supplanting current energy imports with local renewables, businesses, households and the local economy would benefit from greater stability and security in energy supply. The county will use significantly less fossil fuels and so cut its carbon emissions, potentially leading the way in co-ordinated renewables development for local benefit.

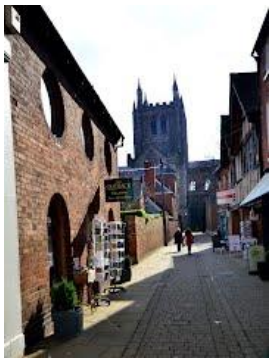
Assuming local procurement takes place wherever possible, the capital costs would also create a substantial injection into the local economy; benefits that will be further enhanced by the 'local multiplier' effect and by community ownership. It is in this light that we should approach the issues of who benefits from the build and infrastructure costs, and who owns the renewable installations, seeking to ensure that wherever possible such ownership and expenditure stays in the community.

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; and we need to act now to take best advantage of current subsidy levels. We suggest that helping local firms to connect in a mutually supportive network would be a useful start (probably combined with the retrofit network) and then to help them create a strategy for making the most of this new sector, in particular through ensuring the right financing options are in place.

More projects are needed to raise awareness and create demand, such as campaigns to encourage home owners, renters, landlords and businesses to invest and take advantage of incentives while they are still here. To best support developing the local supply chain, there needs to be research on materials and technologies that could be produced locally.

Conclusion

A multi-million pound opportunity for Herefordshire



This work shows how supporting our local independent businesses provides an extraordinary opportunity for our area. We believe that a large proportion of the new enterprises, investment opportunities and job creation that our area needs can arise from this kind of approach.

The sectors reviewed here clearly show great potential to improve our economic health as well as the wellbeing of our community. By re-localising the food sector, as much as makes sense, a significant part of the £156m that households spend on food and drink imported from outside the county for home consumption could be spent instead on locally produced items. There is yet more potential in the eating out and tourist spend categories. If we also spend this money in independent shops, then the local multiplier effect can mean this is worth over 2.5 times more to our local businesses.

The retrofit opportunity is a whole new economic sector just waiting to be developed. Estimates show this is possibly worth £150m and will bring our homes to a reasonable level of energy efficiency at least. There are new financing options imminent to help make this more viable for home owners, and opportunities for much of this work to be delivered by local businesses. It will make many of our homes better places to live and less expensive to run.

Developing our renewable energy assets presents another enormous, untapped opportunity that could generate £130m worth of energy-related revenue each year. It also reduces CO2 emissions, improves our local energy resilience, reduces our energy bills and gives residents and organisations investment opportunities for savings and pensions. Government schemes are there, for now, to help pay for the development.

There are opportunities with both the retrofit and the renewables sectors to locally source or manufacture some of the materials and equipment needed, and invent new solutions. These supply chain opportunities need to be researched as soon as possible to help ensure we capture as much of the revenue locally as we can.

These 3 sectors are mutually reinforcing. We can feed ourselves, reduce our energy bills and stay warm, make money from our sun, wind and waste so reducing our CO2 emissions, all while providing jobs and livelihoods, strengthening our community bonds and reducing our environmental impacts.

We can meet a large number of our human wellbeing needs and create a living demonstration of an interconnected, interdependent system where the sum is far greater than the parts.

How will we know if things are changing?

An important activity will be to define the best means to assess change.

One way to do this (along with the usual indicators like number of new businesses, % of local trade, % of community ownership etc.) is to work closely with a small group of representative businesses, organisations and residents.

Detailed analysis of any changes in revenue and sourcing strategies within this "indicator group'" will help show changes in trends in local spend and local sourcing patterns.

Next steps

To help bring all this into being, we suggest it would be useful to map out all the related projects and activities already going on in the county that relate to these sectors. We also 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 would include further research and projects to raise awareness and create demand with local consumers, 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 local 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. For example, there's opportunity for retrofitting our commercial buildings which was not in the scope of this work. Entire sectors may well have great potential too for example, we think that growing our own local finance and banking sector would offer many benefits including local jobs, but equally would help unlock the financial resources of our residents and organisations that could be put to work here for a reasonable return.

We present this work with the hope that it will stimulate discussion and raise awareness of the potential of this kind of local economic development to address many of the financial, social and environmental problems that Herefordshire faces.

We invite all interested local organisations, businesses and individuals to come along to an open meeting that will be held in May 2013 to discuss these findings, and how they might best be put to use for the benefit of our county and its residents.

Please come along and give feedback, ask questions, share your own ideas, tell us what we have missed, state your needs, offer constructive criticism and possibly, offer your ongoing involvement in some way that helps ensure these opportunities are not missed. The date and venue will announced shortly on www.reconomy.org and other relevant websites.

If you have questions or comments that can't wait until then, please contact Nick Sherwood at enova@onetel.com and we will do our best to respond.

reconomy Herefordshire
re-imagining
re-viewing
re-creating
the local economy

...and meanwhile here's some practical ideas for starting to change our economic system now

Whether you live in this area or not, and regardless of the type of organisation you work for, there are things you can do if you support the idea of building a stronger local economy including:

Residents

Could you change some of your buying habits, and start to make choices that positively affect the future of the place where you live? Could you use your money to help seed fund small enterprises with your savings or self-invested personal pensions? Could you offer your professional skills to help start-up enterprises?

Retailers and businesses

Could you source 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 gain the efficiencies of your larger competitors and benefit from mutual support?

Landowners

Rather than selling off land to the highest bidder, often high volume house builders, could you take a collaborative approach to enable a balanced growth of local enterprises – such as providing opportunities for local builders as well as protecting food production space for example, or building shared facilities?

Commercial landlords

Could you consider using your property to give start-up enterprises the 'right to try' their business on a low rent for an agreed term? Could you give preferential rates to local businesses? Could you look at alternative means of exchange for your rent payments?

Schools and colleges

Could you encourage entrepreneurial and co-operative working amongst students? Could you better prepare them for the world of work that actually awaits them, by working more closely with local economic organisations and identifying skill gaps for example? Could you provide specific training courses on retrofitting measures and renewable energy installation? Could you increase land-based skills training? Could you offer greater support to young entrepreneurs?

Local government

Could county-level economic strategies and actions achieve a better balance between promoting 'strategic growth', and economic sustainability within localities? Can you provide support to local businesses that enables them to more effectively tender for public sector contracts, such as providing food and drink, as well as other goods and services? Could your own procurement policies actively encourage local economic sustainability? Can you use your powers under the National Planning Policy Framework to deliver sustainable development, and use Neighbourhood Planning to designate 'low carbon', small-enterprise-friendly zones?

Local Economic Partnerships (LEP)

Could LEP based economic strategies achieve a better balance between traditional growth and local economic sustainability? Can the LEP, and the key national agencies operating in the area, actively promote the key economic sectors described in this document? Could you include in your business strategy and income generation plans a strong theme of support for low carbon small enterprises? Could you bring in funding to establish incubators and offer seed funding?

Local economy theory

Or if everyone pursued their own economic strategy like this, how could everyone be better off?

One way to look at this is from the perspective of the negative externalities in existing patterns of economic activity. If current non-local supply and demand linkages create economic, social or environmental 'dis-benefits' that are not fully accounted for in current financial flows or behaviours, then there is a case for more localisation in certain markets or sectors (looking through a traditional economic theory lens).

Another more intuitive way to answer this question could be that the majority everywhere would be better off simply because the power and wealth of the 1% (for want of a better description) would be diminished by appropriate localisation.

Overall, we suggest that the kind of localisation we talk about here will best serve all of our needs where it provides net benefits, and where all the relevant information about the benefits is available to consumers, producers, investors and procurement decision makers.

However, this wider Economic Evaluation project does not aim to provide a full economic theory of localisation by which we can make such benefit calculations. Clearly there are questions around local level import/export trade gaps, economic rent, imbalances of market power, inequality, efficiencies of scale and returns to capital vs labour etc. that would ideally be explored as part of any such theory. At the same time, we recognise that the money that leaves our area, via corporates for example, can still has some indirect benefit to our local community through perhaps providing employment elsewhere, that in turn reduces our share of the potential national burden of welfare costs.

At this stage, we are taking what we feel is a practical and sensible position that our economic system needs to be rebalanced. The pendulum has simply swung too far towards globalisation and corporate power, hollowing out local economies and reducing their resilience, with growing social and environmental consequences. It's possible that unqualified localism would be as destructive of overall economic wellbeing as is unqualified globalisation. The wider Economic Evaluation project is therefore an attempt to help restore a healthy balance between local, regional, national and international trade and power.

We hope it contributes usefully to the information that's vital for economic actors to decide to behave optimally, and in the best interests of all of us. We will continue to explore the theory of local economic development along with other organisations doing similar work, in parallel, we hope, with implementing some of the practical actions identified here.

More about this work

The detailed reports for each sector plus more information about the project process are available at www.reconomy.org.

The author of the detailed reports is Nick Sherwood (of Transition Hereford contact at enova@onetel.com), and Fiona Ward (of the Transition Network) used these detailed reports plus information gathered from the other Economic Evaluation pilot projects to create this summary report in March 2013. Image sources include www.shophereford.co.uk and www.herefordshirefoodlinks.org.uk.

We would like the give our thanks and appreciation to all those who have contributed to this work. We especially would like to thank the Tudor Trust who kindly funded this work in Herefordshire.

The national Economic Evaluation pilots

This work is part of a national pilot run by the Transition Network's REconomy Project. The local Herefordshire REconomy Project is one of three places that are exploring how best to do this kind of community economic development, based on an economic evaluation process; the other places are Totnes in Devon, and Brixton in Lambeth, London. Together these three pilots provide the widest possible learnings given they represent a market town, a rural county and an inner-city area.

To see the reports from other pilots, find out more about the national Economic Evaluation work (including what support is offered to help you run a similar process where you live), or to find out more about the over-arching national REconomy Project, please visit www.reconomy.org.

REconomy Project

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