

# Environment and Waste Management Overview and Scrutiny Committee, Bradford Council

**Bradford Power: 2020 and beyond**

**Renewable Futures for Bradford Council**



## Link Member Report

December 2012

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# Contents

<b>1.Executive Summary.</b>	<b>3</b>
<b>2.Overview.</b>	<b>8</b>
<b>3.The case for renewable energy.</b>	<b>16</b>
<b>4.Renewable Energy Policy in Bradford.</b>	<b>25</b>
<b>5.Where are we now?</b>	<b>30</b>
<b>6.Where do we need to be by 2020?</b>	<b>32</b>
<b>7.What is the potential for renewable energy in Bradford?</b>	<b>34</b>
<b>8.How much will it cost Bradford Council to develop enough renewable energy to meet its targets?</b>	<b>37</b>
<b>9.‘20%’ scenarios for 2020.</b>	<b>41</b>
<b>10. Actions and Key Recommendations.</b>	<b>51</b>
<b>Circulation List for the draft versions of this report.</b>	<b>86</b>

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# 1. Executive Summary

Three years ago, in January 2010, Bradford's councillors unanimously supported a motion that committed the Council to cutting its carbon emissions by 40% by 2020. The Council resolved (a) to achieve half of these cuts by reducing its energy use and (b) to find the remaining carbon savings by investing in renewable energy.

Since then, the Council has achieved huge energy efficiencies. The result is a fall in the Council's carbon emissions (including schools) by nearly 22% in the past four years (from 88,000 tonnes to 69,000 tonnes). The Council's use of vehicle fuel has dropped by a sixth in the same period. These are impressive achievements and the officers and councillors responsible for this tremendous progress deserve our thanks.

The Council has also begun to invest in the renewable energy that it will need to achieve its 2020 target. The biomass boilers in City Hall Ilkley Town Hall, and the new solar PV arrays at St James Market and the Harris Street depot, are pioneering and welcome. Nonetheless, they currently provide a tiny fraction of the Council's overall energy needs and much more needs to be done.

The purpose of this Link Member report, therefore, is to sketch out for colleagues how Bradford Council might invest in generating its own renewable energy, what this might cost, and to recommend robust steps that can be taken to ensure that we achieve the 2020 goals laid down in the January 2010 Council resolution. This report suggests a wide range of ways in which the Council can transform investment in renewable energy in Bradford, in relation to both its own corporate operations and the energy use of the District's communities and key organisations.

The report makes a number of central points.

- There is sufficient renewable energy potential in Bradford District to enable the Council to achieve its 2020 renewable energy target.
- Achieving this target will require an average annual capital investment of around £2 million over the next eight years.

- The revenue returns on this kind of capital investment are substantial and will provide a net source of income for the Council for decades to come. There is a strong 'invest-to-save' rationale in support of these kinds of investments that will support their business cases.
- There is tremendous scope for the Council to engage intensively with local community energy groups, schools and other energy organisations to exploit the District's renewable energy potential, including in the form of district heating schemes. This innovative way of working dovetails well with the transformative organisational and delivery changes taking place in Bradford at present and should be the default approach for every renewable energy project that the Council seeks to invest in.
- Renewable energy offers opportunities for the Council to do more to improve the District's energy security, economic resilience and to tackle fuel poverty.
- The Council can do more to improve the sustainability of its building and planning policies in relation to its own estate, its major development projects and its role as planning authority. As with renewable energy, the business case for creating more sustainable buildings is robust and persuasive.
- The Council has promising options that it can explore for investing in new, low carbon vehicle and refuse collection fleets that will drive down its fossil fuel consumption and carbon emissions.
- The Council has opportunities to develop new mechanisms for investing in and managing renewable energy projects, including by establishing an 'Energy Services Company'. Other councils have successfully developed business cases in support of these types of energy delivery frameworks.
- The Council can – and must - play a leading role in collaborating in a structured way with key partners in the District to exploit renewable energy as part of the management of our shared transition towards a low carbon future.

The report includes five 'Key Recommendations'. Their aims are:

- to improve the way Bradford Council invests in renewable energy;

- to strengthen the delivery of renewable energy via our buildings and planning policies;
- to place community empowerment at the heart of the Council's efforts to exploit Bradford's renewable energy potential;
- to ensure that the Council establishes new energy investment and management arrangements, including establishing its own 'energy services company';
- and to encourage the Council to establish a successful district-wide renewable energy partnership capable of mapping out Bradford's transition to a low-carbon future.

## **Key Recommendation 1: Council Investment in Renewable Energy**

That Bradford Council strengthens its financing arrangements governing investment in renewable energy in three ways.

- First, by establishing a ring-fenced 'Sustainable Energy Fund', managed by the Environment and Climate Change Unit, to provide a source of sustained investment in renewable energy projects in Bradford; and ensuring that this fund operates on the basis that all of the revenue accruing from these projects is recycled back into the fund to (a) pay back the original capital costs and (b) sustain ongoing renewable energy investments.
- Second, by relaxing restrictions on the pay-back periods for energy-related capital projects so as to facilitate investment in a wider range of renewable energy projects.
- Third, by establishing a more robust medium-term financial framework that delivers sustained year-on-year investment in renewable energy, linked to the ring-fenced 'Sustainable Energy Fund'.

## **Key Recommendation 2: Buildings and Planning**

That Bradford Council strengthens its building and planning policies in three ways.

- First, by ensuring that all new Council buildings brought 'on stream' are either zero carbon or net generators of energy, including that any affordable housing built by the Council is in accordance with Code 6 of the 'Code for Sustainable Homes Standard' (perhaps in conjunction with the development of a new 'Corporate Sustainable Buildings Policy').
- Second, by ensuring that its estate is progressively retrofitted to minimise energy use and maximise renewable energy generation before 2020, with particular reference to installing biomass heating, solar PV and solar thermal technology, and including the District's school buildings as well (subject to suitable collaborative arrangements being agreed).
- Third, by ensuring that its planning guidance is upgraded in relation to climate change and low carbon/carbon neutral developments so (a) that all new developments secure at least a 20% saving in CO2 emissions from energy use through onsite generation of renewable energy and (b) that district heating schemes are automatically incorporated into major new developments.

## **Key Recommendation 3: Community Empowerment**

That Bradford Council:

- (a) prioritises community empowerment as a core element of every aspect of its investment strategies for renewable energy;
- (b) liaises with potential third sector partner organisations to review how this can be achieved in practice on the widest possible scale across the District, including in collaboration with local schools.

## Key Recommendation 4: Sustainable Energy Partnerships

That Bradford Council:

- (a) urgently reviews the options for establishing partnership arrangements with private sector companies that would be capable of delivering renewable energy and district heating projects in our locality;
- (b) urgently reviews the options for establishing and managing its own Energy Services Company along the lines pioneered in Woking, Bristol and Norfolk;
- (c) ensures that these reviews include detailed consideration of the potential arrangements for establishing district heating networks, including in connection with the planned Resource Recovery Facility at Bowling Back Lane.

## Key Recommendation 5: District-wide preparation for a Low Carbon Future

That Bradford Council establishes a small district-wide 'Sustainable Energy Group' in early 2013 with members drawn from the Council, the business sector, the 'Third Sector' and key community organisations, with a view to finalising a report by the end of 2013 that (a) addresses the energy challenges posed for our District by peak oil and climate change and (b) provides a practical basis for managing our transition towards a low carbon future.

*Kevin Warnes, December 2012*



*I would like to express my sincere appreciation to colleagues for reading through earlier drafts of this report and taking the time to discuss these matters with me over the past two years. The complete list of all those involved in this process is provided at the back of this report. I am particularly indebted to John Anderson, Roland Arnison, Ian Birstow, Geoff Binnington, Simon Bowens, Andrew Brown, Emma Hill, Matt Hill, Sheri-Leigh Miles, Martin Love, Andrew Marshall, Neill Morrison, Alex Ross-Shaw, David Shepherd and Richard Williamson. The detailed feedback that I received was invaluable in shaping this final draft and I am very grateful indeed. My thanks to all concerned for their time, generosity and consideration.*

## 2. Overview

The report begins by outlining the strong environmental and economic reasons why the Council should invest in renewable energy.

- Bradford is heading into a post-carbon future as part of the global effort to deal with carbon pollution and climate change. We are already being pressed by national government to reduce our carbon emissions. Renewable energy, in addition to cutting the amount of energy that we use, is the key to achieving a more sustainable energy future for our District.
- Fossil fuels are becoming more expensive as demand for these energy products rises worldwide and their extraction becomes more difficult – the latest energy price rises will drive up the Council’s gas and electricity bills by £500K in the next financial year alone. We are living in a period of energy transition where the imminent peaking of world oil and gas production is propelling communities like Bradford to confront our mounting energy insecurity and its associated risks. Reducing our reliance on fossil fuel energy sources, and maximising our use of renewable energy (preferably generated within Bradford District), is central to finding robust solutions to this ongoing crisis.
- We live in a local economy that is not sustainable, particularly in an environmental sense, and part of the reason for this is the lack of economic resilience in our community. Our District currently ‘leaks’ £700 million a year to pay other people elsewhere in the UK, Europe and beyond to provide us with gas and electricity. This annual haemorrhaging of local spending power – over which we have little control - is set to rise to around £1 billion over the next decade. Investing in renewable energy would begin to reverse this out-flowing tide of finance and put money back in the pockets of local people, community organisations, Bradford firms and the Council.
- Partly as a result of the soaring cost of fossil fuel energy, tens of thousands of Bradfordians are experiencing worsening fuel poverty – more than in most parts of the country. In addition to boosting home energy efficiency measures,



renewable energy microgeneration offers a way of reducing the dependence of local people on the international energy markets and future-proofing them against the prospect of mounting fuel bills. Renewable energy therefore offers opportunities to boost financial inclusion among our poorer residents.

These are certainly huge challenges, although it is also fair to say that they also present huge investment opportunities. Fortunately, as the report indicates, Bradford Council has helped to develop a relatively mature strategic framework over the past five years that can guide our approach to managing energy in more sustainable ways. These should provide a good platform for detailed action planning.

- The Council accepted the need to deal with ‘peak oil’ back in October 2007.
- The Council set ambitious energy and carbon management targets for 2020 in January 2010.
- The Council’s Environment and Climate Change Unit has developed a wide-ranging ‘Framework for Actions’ to reduce the carbon pollution currently associated with the Council’s energy use.
- Bradford’s Sustainable Community Strategy, or ‘Big Plan’ aimed to reduce Bradford’s carbon emissions and our reliance on oil.
- Bradford’s new ‘Community Strategy’ accepts the need to deal with climate change and boost renewable energy and the use of locally sourced fuels.
- Bradford’s draft Local Development Framework refers repeatedly to the opportunities available to boost investment in renewable energy in our District.
- The new Leeds City Region Local Enterprise Partnership is committed to being a leading low carbon city region and to investing in renewable energy.

It is clearly crucial for Bradford Council to know ‘where we are now’ in terms of our energy use and carbon emissions, and ‘where we need to get to’ by 2020, in order to develop the action-planning necessary to achieve our carbon reduction targets.

- Bradford Council has now developed extremely accurate measurements of its own energy use and carbon emissions. This was an early priority for the Environment and Climate Change Unit team.

- Predicting how much energy the Council will be using in 2020 is much more difficult, however, given the major organisational and service delivery changes underway as well as the Council's ongoing energy efficiency measures.
- This report therefore provides an *indicative* estimate of the Council's possible annual use of gas, electricity and vehicle fuels by 2020 (approximately 90,000MWh). This figure, in turn, suggests that the Council should aim to be sourcing at least 18,000MWh (20%) of its annual energy consumption from renewable energy, preferably within the District.

Another crucial question that this report seeks to address is whether or not there is enough potential renewable energy in Bradford District to enable the Council to meet its 2020 objectives. Recent authoritative studies suggest that there is, fortunately, even taking into account the financial and political challenges of tapping into all of it.

- The 2009 Regional Spatial Strategy suggested that Bradford could realistically aim to be exploiting 56MW of renewable energy by 2021.
- The 2011 AECOM report for Local Government Yorkshire and Humber estimated that Bradford's total potential renewable energy capacity is 259MW. This would deliver 682,000MWh of renewable power annually for the District if it were all exploited (eight times the Council's likely energy requirements by 2020).

A central – and entirely understandable - concern for Bradford's policy-makers is the potential cost of investing in renewable energy, especially given the massive financial pressures bearing down on the Council. A related – but equally important - issue is the length of the payback times on the investment required. This report attempts to provide broad guidance in response to those questions as well in order to provide reassurance that the business case for this type of investment is sound.

- The precise cost of investing in renewable energy depends to a large extent on the mix of renewable energy technologies that we choose to develop. Overall, the general trend in their cost per KW is clearly downwards as the renewables sector continues to evolve technologically and rising demand for these products worldwide reduces their unit costs. The relative cost of renewable energy prices fluctuates in relation to fossil fuel prices, but the

overall trend is towards equalisation between the two sets of energy prices as the price of oil and gas continues to rise.

- Onshore wind turbines are usually the more cost-effective form of investment per KW; biomass, solar PV and thermal and hydropower tend to be more expensive. These reflect the differences in the amount of initial capital investment required; once that capacity is in place, of course, the energy is virtually free as the only cost is maintaining the generating equipment (apart from biomass, of course, for which biomass fuel is required).
- This report finds that the capital investment needed to enable the Council to obtain 20% of its total energy requirements from renewable sources within the District by 2020 will range from a minimum of £12 million (if wind energy alone is exploited) to at least £20 million (if the widest range of renewable technologies is exploited - a much more likely scenario). In other words, Bradford Council's budgets will probably need to sustain an average of £2 million annually in capital investment for renewable energy projects over the next eight financial years (2013-2021). This investment cannot be delivered smoothly, since projects come on stream at different speeds; the annual figure is therefore only indicative of the overall scale of the investment needed. It is important that this finance is made available ahead of time to facilitate management of this complex procurement process.
- It should be emphasised strongly that ALL of this investment will be relatively quickly repaid by the renewable energy generated, especially if the Council exploits its considerable financial reserves to provide that initial capital investment rather than relying primarily on prudential borrowing. Renewable energy projects typically pay for themselves completely within 7-15 years depending on the start-up costs and the financial returns (Feed-in Tariffs, Renewable Heat Incentive scheme etc) associated with particular renewable energy technologies. Thereafter, they continue to generate substantial and guaranteed revenue streams for the Council. The same applies to investing in biogas-fuelled refuse collection vehicles; these are so much cheaper to run than petrol or diesel powered vehicles that they pay back their extra capital costs within five years.

- It is therefore fair to say that the key element in the financing of renewable energy is not the upfront capital investment costs, though these are considerable, but the length of time it takes to recoup that investment. The experience of Bradford Council to date, and of other councils across the UK, is that robust and persuasive business cases can be developed for renewable energy and that the financing of these schemes is both sustainable and self-sustaining.

This report outlines the overall range of renewable energy projects that would be suitable vehicles for Council investment – indeed, some of these have already been implemented and more are planned. There are certainly plenty of options available and all of them will need to be utilised if Bradford is to achieve its low carbon energy ambitions for 2020.

- Wind turbines could make a huge contribution to the District's energy supply. The Regional Spatial Strategy estimated that 15MW of wind energy capacity could be developed by 2021. The Ovenden Moor 'Repower' scheme will probably generate 49,000MWh annually now that planning consent has been obtained for the nine new proposed larger turbines, and illustrates what can be achieved with sufficient capitalisation and a suitable location.
- Solar PV is already being rolled out by the Council, additional PV projects are planned and there is obviously huge potential for much more. It is also a relatively straightforward and adaptable technology to install across the Council's estate, with a long operating lifetime and minimal maintenance costs.
- Biomass boilers offer a more environmentally and financially sustainable solution than gas for heating our buildings. This is an option that ought to appeal to the Council and the District's 200+ schools, especially if local combined heat and power schemes can be launched as well over time.
- Hydropower is another valuable option. The AECOM report mentioned above suggested that Bradford could develop up to 4MW of hydropower schemes capable of delivering 14,000MWh of power annually, and the Council is already developing hydropower proposals for Saltaire.

- The use of biogas refuse collection vehicles would enable a huge reduction in the Council's current annual consumption of 2.5 million litres of fuel and, as just mentioned, would be completely self-financing thanks to the lower running costs of these vehicles.
- It should be noted at this stage that this report recognises the carbon reduction case that can be made from the greater energy efficiency that is associated with combined heat and power schemes. However, it does not classify the 'Energy from Waste' (EfW) electricity that will potentially be produced by the proposed Energy Recovery Facility at Bowling Back Lane as a source of renewable energy, at least as far as the Council's energy use is concerned (it is estimated that the plant's generating capacity will be 18.8MW).<sup>1</sup> There are three reasons for this. First, the plant will not pass into Council ownership for 25 years. It can, therefore, make a contribution to cutting the carbon emissions of the District as a whole, but cannot reasonably be counted towards meeting the Council's own renewable energy targets for 2020. Second, EfW combustion technology is not fully classified as 'renewable energy' in so far as it does not attract Feed-in Tariffs and does not qualify for Renewable Obligation Certificates unless it is part of a combined heat and power scheme – and CHP is currently not planned to be delivered by this facility (though the potential is there).<sup>2</sup> Finally, approximately one third of the residual municipal waste stream that will fuel the plant will be non-biological and is therefore non-renewable.<sup>3</sup> Proponents of a 'Circular Economy' would argue that there are often better ways of using the individual materials in municipal waste, particularly as we move beyond 2020 towards a post-carbon economy.<sup>4</sup>

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<sup>1</sup> 'Resource Recovery Facility, Bowling Back Lane, Bradford, Application for Environmental Permit, EPR-JP3038CF/A001', URS Energy Management, July 2012, p.2: [http://www.pennineresources.com/websitefiles/energy\\_management.pdf](http://www.pennineresources.com/websitefiles/energy_management.pdf).

<sup>2</sup> 'Energy from Waste, A Guide for Decision-Makers', Renewable Energy Association, p.6: <http://www.r-e-a.net/pdf/energy-from-waste-guide-for-decision-makers.pdf>

<sup>3</sup> The Renewable Energy Association advises that approximately 65% of residual municipal waste in the UK is biomass and can be classified as 'renewable', leaving around a third that is therefore 'non-renewable'. 'Energy from Waste, A Guide for Decision-Makers', Renewable Energy Association, p.2: <http://www.r-e-a.net/pdf/energy-from-waste-guide-for-decision-makers.pdf>

<sup>4</sup> See, for example, the information about the 'Circular Economy' provided by the Ellen Macarthur Foundation: <http://www.ellenmacarthurfoundation.org/>.

This report notes that much more work will need to be done by Bradford Council and its District partners to ensure that these environmental and business opportunities are properly exploited. Section 10 in particular outlines a wide range of suggestions focused on the eight years to the end of 2020 that will hopefully provide a valuable input into the Council's deliberations in this vital area of policy. They indicate that the Council:

- develops its strategic thinking and action planning in relation to renewable energy and its corporate ability to deliver projects of this kind;
- establishes more sustainable funding streams for our renewable energy projects;
- replaces its vehicles with low carbon alternatives and develops a network of EV charging points;
- ensures that its existing and future buildings are future-proofed by maximising their energy efficiency and investing in microgeneration;
- quickly upgrades its planning guidance to ensure that the 500+ new buildings constructed each year in our District are more sustainable in their energy use;
- completes an in-depth evaluation of the potential for exploiting renewable energy across our District;
- works intensively in a range of ways with our schools and their community networks to boost investment in renewable energy;
- establishes more systematic and proactive partnerships with local community groups and businesses to boost investment in renewable energy;
- reviews its own potential for establishing major partnership arrangements to boost investment in renewable energy, including the creation of its own Energy Services Company ('Bradford Power');
- establishes a district-wide 'Sustainable Energy Group' in collaboration with partner organisations and community representatives with the purpose of identifying ways to address the energy challenges posed for our District as a whole by peak oil and climate change;

- and, lastly, reviews its own energy vision of how Bradford Council will continue to reduce its corporate carbon emissions and invest in renewable energy in the decades after 2020.

In closing, it is a sobering thought that the Council's 40% carbon reduction target for 2020 will only take us halfway towards the UK-wide 80% carbon reduction goal for 2050. There is much to do and it will take decades to achieve. There are even concerns, as the report notes, that the national 80% target for 2050 will turn out to be too little, too late and that swifter and more radical actions will become necessary. It is therefore all the more important that the Council makes huge early strides in this direction over the next eight years.

Ultimately, Bradford Council's investment in renewable energy between now and 2020 is essential; but the greater challenge will be what we do after that date as Bradford District as a whole completes a more fundamental transition towards a post-carbon society. As we embark on that transition, it will be vital to see this difficult process of change as a positive opportunity to reinvigorate our local economy and reshape our use of energy in more sustainable ways.



## 3. The case for renewable energy

### 3.1 Tackling Climate Change

The world's leading scientific bodies, governments and key international organisations led by the United Nations and the European Union accept that climate change is a serious global crisis that requires rapid action to mitigate its worst consequences – the accelerating loss of arctic sea ice is the latest 'climate change event' to dominate the headlines - and adapt our economies and societies to a sustainable low carbon future.<sup>5</sup> The British government is committed to cutting UK carbon emissions by 50% by 2027 and 80% by 2050 compared to 1990 levels, and local councils like Bradford will need to play their part in 'powering down' and decarbonising the British economy. A key element in this transition to a low carbon society (in addition to energy efficiency) will be reducing our dependence on fossil fuels (oil, coal and gas) and boosting our use of renewable energy, whether generated locally or nationally or drawn in via a European-wide renewable energy grid.<sup>6</sup> The need to tackle climate change, in other words, will force us to rely increasingly on renewable energy as part of Bradford's journey into a 'zero carbon' future.<sup>7</sup>

As I argued in my Link Member report on carbon management to the Environment and Waste Management Improvement Committee in November 2009, there are compelling reasons why Bradford Council needs to take direct responsibility for reducing the carbon pollution caused by its consumption of fossil fuel energy.<sup>8</sup> In any

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<sup>5</sup> I provided a concise summary of the science of climate change in my November 2009 Link Member Report on Carbon Management - see Section 2.3, 'The Science of Climate Change', pp.18-20. Bradford Council's Carbon Management, Link Member Report by Cllr Kevin Warnes, adopted by the Environment and Waste Management Improvement Committee, Bradford Council, 24 November 2009 (available on the Bradford Council committee agenda, reports and minutes web pages for the 2009-2010 municipal year, listed as Appendix A to Document K):

<http://councilminutes.bradford.gov.uk/wps/portal/cm>.

<sup>6</sup> See, for example, 'Oceans of Opportunity, Harnessing Europe's Largest Domestic Energy Resource', report published by the European Wind Energy Association, September 2009:

[http://www.ewea.org/fileadmin/ewea\\_documents/documents/publications/reports/Offshore\\_Report\\_2009.pdf](http://www.ewea.org/fileadmin/ewea_documents/documents/publications/reports/Offshore_Report_2009.pdf).

<sup>7</sup> The ZerocarbonBritain2030 project has established in detail how the UK could move towards a zero carbon future over the next two decades – a brief summary can be found in the ZCB2030 factsheet at

<http://www.zerocarbonbritain.com/resources/factsheets>. The most recent ZCB2030 report was published in 2010 and can be downloaded in full: <http://www.zerocarbonbritain.com/>.

<sup>8</sup> See Section 2.1, 'The Case for Carbon Management', Link Member Carbon Management Report, November 2009, pp.11-15. Bradford Council's Carbon Management, Link Member Report by Cllr Kevin Warnes, adopted by the Environment and Waste Management Improvement Committee, Bradford Council, 24 November 2009 (available on the Bradford Council



case, it is unlikely that the Council will be allowed to procure its energy supplies in a 'business as usual' manner, and leave it to the private sector, other government and non-governmental agencies, and other countries, to deal with climate change (and invest in renewable energy). With the current government committed to achieving a 50% cut in UK-wide carbon emissions by the end of the fourth carbon budget period in 2027, it is reasonable to assume that a major metropolitan authority like Bradford Council (and Bradford District as a whole) will be pressed to match this level of decarbonisation as part of the national response to our global climate emergency.<sup>9</sup> 'Business as usual' is a luxury that, for better or worse, is therefore no longer an optimal energy management approach for Bradford. As a recent report commissioned by the Department for Energy and Climate Change stated bluntly in June 2012, the UK's renewable energy targets "are challenging and require joint action from both central and local government".<sup>10</sup>

In a more fundamental sense, the environmental pressures of climate change are pushing us all to transform the way that we use energy. In the decades ahead, Bradford District will need to consume less energy overall and break its dependence on our rapidly declining reserves of fossil fuels. By 2050, we will hopefully be living in a decarbonised society in which renewable energy sustains our economy and our everyday lives. This vision of a 'Zero Carbon Bradford' is one that needs to be embraced by the Council, integrated into every aspect of our corporate strategies and action plans, placed centre stage in our partnership activities, and communicated clearly to the people who live in Bradford District as a defining feature of our civic leadership role and responsibilities.

### **3.2 Building Energy Security and Managing Energy Risk**

Bradford Council currently relies on fossil fuel energy for its electricity and heating needs, nearly all of which is procured indirectly via the national electricity grid and

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committee agenda, reports and minutes web pages for the 2009-2010 municipal year, listed as Appendix A to Document K): <http://councilminutes.bradford.gov.uk/wps/portal/cm>.

<sup>9</sup> Fourth Carbon Budget, Oral Ministerial statement by Chris Huhne, May 2011: [http://www.decc.gov.uk/en/content/cms/news/cb\\_oms/cb\\_oms.aspx](http://www.decc.gov.uk/en/content/cms/news/cb_oms/cb_oms.aspx).

<sup>10</sup> 'Review of approaches adopted in regional renewable energy capacity assessments when following the Regional Renewable and Low Carbon Energy Capacity Methodology, June 2012 Update', A Report for the Department of Energy and Climate Change, NNFCC Project 11-030, Harley Stoddart and David Hurley, National Centre for Biorenewable Energy, Fuels and Materials, p.5: <http://www.decc.gov.uk/assets/decc/11/meeting-energy-demand/wind/5827-review-approaches-adopted-regional-renewable.pdf>.

external gas providers.<sup>11</sup> In addition, the Council's vehicles consume just over 2.5 million litres of petrol or diesel annually (2011-2012 data).<sup>12</sup> This is a problem in so far as UK, European and worldwide reserves of coal, oil and gas are finite and their availability will unavoidably 'peak'. In other words, further expansion of their production will become impossible once new production flows are fully offset by production declines as extraction becomes more difficult and costly and environmentally destructive – hence the phrase 'peak oil'.<sup>13</sup> When this 'peaking' will happen is not clear; its precise timing is uncertain. But global conventional oil production certainly peaked six years ago and there is compelling evidence that an overall peak of conventional *and* unconventional oil production will occur within 20-25 years, if not sooner.<sup>14</sup> The Zero Carbon Britain 2030 report published in 2010 cites a range of studies that suggest that peak oil will occur sometime between 2013 and 2031 – in other words, within the next 18 years.<sup>15</sup>

The phenomenon of 'peak oil' raises fundamental questions about the longer term security of our energy supplies for our society and our economy. Bradford's 'Big Plan' acknowledged this in 2008.<sup>16</sup> The finite nature of our fossil fuel reserves poses

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<sup>11</sup> According to data provided by Bradford Council's Environment and Climate Change Unit in July 2012, only 9% of the electricity used by the Council in 2011-2012 was generated from renewable energy. Moreover, the Council procured virtually all of this renewable energy from outside providers – less than 1% of the Council's energy needs is generated renewably within Bradford District (this figure is expected to rise to approximately 13.7% when planned biomass, hydro, solar PV and solar thermal, and anaerobic digestion projects are implemented).

<sup>12</sup> Information provided for this report by the Environment and Climate Change Unit in August 2012. The precise total fuel consumption was 2,572,719 litres of a range of fuels.

<sup>13</sup> For a concise explanation of the phenomenon of 'peak oil', see 'Zero Carbon Britain 2030, a new energy strategy', Zero Carbon Britain project, 2010, pp.62-63: <http://www.zerocarbonbritain.com/>.

<sup>14</sup> The International Energy Agency predicted in 2010 that overall global oil production will come close to peaking by 2035. This leaves just over two decades for governments to prepare for the transition to a post-oil economy, arguably a very short timeframe to manage a strategic change of this magnitude. Moreover, this relatively optimistic IEA forecast (compared to others) recognised that world crude oil production peaked in 2006. It also asserted that it will be possible for rising global demand for oil to be met by a substantial increase in unconventional oil and biofuels – each of these assumptions are questionable and present their own risks for policy-makers. 'World Energy Outlook 2010, Executive Summary', International Energy Agency, p.6: [http://www.worldenergyoutlook.org/media/weowebiste/2010/WEO2010\\_es\\_english.pdf](http://www.worldenergyoutlook.org/media/weowebiste/2010/WEO2010_es_english.pdf). Other predictions about peak oil fall earlier than the IEA's. For example, Germany's Energy Watch Group estimated in 2007 that world oil production had peaked in 2006 and that "the world is at the beginning of a structural change of its economic system" ('Crude Oil: The Supply Outlook', Report to the Energy Watch Group, October 2007, EWG-Series No.3, 2007, p.17): [http://www.energywatchgroup.org/fileadmin/global/pdf/EWG\\_Oilreport\\_10-2007.pdf](http://www.energywatchgroup.org/fileadmin/global/pdf/EWG_Oilreport_10-2007.pdf). Writing in 2008, Rob Hopkins (founder of the Transition Towns movement) stated that "the majority of estimates [of when peak oil might occur] are now falling between 2010 and 2015". Hopkins goes on to acknowledge that the precise date "is not really so important" and emphasises that "what matters is the fact that it is inevitable". This is certainly a key consideration as far as Bradford Council is concerned. 'The Transition Handbook: From Oil Dependency to Local Resilience', Rob Hopkins, 2008, pp.28-29.

<sup>15</sup> 'Zero Carbon Britain 2030, a new energy strategy', Zero Carbon Britain project, 2010, p.63: <http://www.zerocarbonbritain.com/>.

<sup>16</sup> The Plan specifically accepted that "resources such as oil and gas are limited and will become increasingly expensive". 'The Big Plan for the Bradford District 2008-2011: Our Sustainable Community Strategy', published by Bradford Council on

profound risks for Bradford Council's future energy procurement planning and for managing the energy needs of our District as a whole. In other words, there is a real and growing risk that our children and grandchildren will not have secure access to sufficient energy in future in order to be able to enjoy at least the same quality of life that we enjoy today.<sup>17</sup>

These risks are two-fold: supply and cost. First, where will we get our future energy supplies from once our traditional sources of imported fossil fuel energy are no longer able to provide these energy products on the same scale and as affordably as has been the case in the recent past? Second, how much will we have to pay for our energy as oil, gas and coal imports become more expensive and as the carbon cost of these products is internalised in their price via carbon tax and trading schemes? Already, the Carbon Reduction Commitment (CRC) levy that the Council has to pay the government each year for its carbon emissions is set to double over the next decade (from £12 per tonne of CO<sub>2</sub> today up to at least £20 per tonne by 2020).<sup>18</sup> In addition, Bradford Council is subject to the Climate Change Levy.<sup>19</sup>

The growing – but temporary - exploitation of shale gas (and 'fracking') worldwide will not fundamentally alter this picture or provide a lasting panacea to our looming energy challenges. It is certainly true that unconventional gas resources will account for a slightly higher proportion of global gas supplies by 2035, as noted in the International Energy Agency's 'special report on gas' in 2011.<sup>20</sup> However, the British Geological Survey estimated in 2010 that UK shales would only yield the equivalent

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behalf of the Bradford District Partnership, October 2008, p.53: <http://www.bradford.gov.uk/NR/rdonlyres/27B61414-0FE5-4B01-BE12-2E96A67D5C5E/0/BigPlanFullversion.pdf>.

<sup>17</sup> 'Sustainable Development' is a term that is liberally used in contemporary economic contexts in ways that often stray far from the more persuasive definition of 'sustainable development' articulated by the Brundtland Report of 1987 and accepted as definitive for the purposes of this Link Member Report. Specifically, the Brundtland Report stated that "Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs". 'Our Common Future, Report of the World Commission on Environment and Development', United Nations, 1987, Section 3:27: [http://conspect.nl/pdf/Our\\_Common\\_Future-Brundtland\\_Report\\_1987.pdf](http://conspect.nl/pdf/Our_Common_Future-Brundtland_Report_1987.pdf).

<sup>18</sup> Richard Williamson, head of the Environment and Climate Unit, reported to the Environment and Waste Management Overview and Scrutiny Committee on 24 July 2012 that the CRC 'carbon tax' is set to rise to £15 per tonne of CO<sub>2</sub>, and that its cost to the Council (including our schools) in July 2012 was £827,000 (down from £992,000 in July 2011). The Environment Agency has reported that estimates of how high the carbon tax will be by 2020 have ranged from £20 to £40 per tonne of CO<sub>2</sub> – see 'The CRC Energy Efficiency Scheme: Coverage, Abatement and Future Caps', Environment Agency, November 2009, p.V: <http://publications.environment-agency.gov.uk/PDF/SCHO0609BQDP-E-E.pdf>.

<sup>19</sup> [http://www.decc.gov.uk/en/content/cms/emissions/ccas/cc\\_levy/cc\\_levy.aspx](http://www.decc.gov.uk/en/content/cms/emissions/ccas/cc_levy/cc_levy.aspx).

<sup>20</sup> 'Are we entering a golden age of gas?' IEA Special Report on Gas, 2011, pp.7-8: [http://www.worldenergyoutlook.org/media/weowebsite/2011/WEO2011\\_GoldenAgeofGasReport.pdf](http://www.worldenergyoutlook.org/media/weowebsite/2011/WEO2011_GoldenAgeofGasReport.pdf).

of roughly two years of current UK gas demand, hardly a ‘game-changer’, and later indicated that only 10-20% of UK reserves of unconventional gas are actually recoverable.<sup>21</sup> The environmental costs of unconventional gas exploitation also need to be borne in mind, including the consumption of vast quantities of water in the extraction process and the associated risks of groundwater contamination with gas, toxic chemicals and even radioactive particles.<sup>22</sup> It is also likely that shale gas has higher greenhouse gas emissions than conventional gas (though lower than coal).<sup>23</sup> This is why the Climate Change Committee has recently warned that “unabated gas-fired generation cannot form the basis for government policy “given the need under the Climate Change Act to set policies to meet carbon budgets and the 2050 target”.<sup>24</sup> As one former Director of the Tyndall Centre for Climate Change Research commented in 2011, “from a climate-change perspective, this stuff simply has to stay in the ground”.<sup>25</sup>

These sets of risks need to be publicly acknowledged, managed and mitigated by Bradford Council – more so than they have been so far.<sup>26</sup> And time is running out. If we assume that the transition to a post-carbon, post-peak economy for our highly industrialised, fossil fuel dependent economy will take at least two decades to achieve, as outlined (in relation to the US economy) in the widely-cited ‘Hirsch Report’ of 2005, it would seem prudent to plan for, invest in, and aggressively accelerate this risk management process.<sup>27</sup> In this way, Bradford Council can play its part in building a more resilient, secure economy in our District.

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<sup>21</sup> ‘Shale Gas and Fracking’, House of Commons Standard Note SN/SC/6073, Dr Patsy Richards, July 2012, p.4: [www.parliament.uk/briefing-papers/SN06073.pdf](http://www.parliament.uk/briefing-papers/SN06073.pdf).

<sup>22</sup> ‘The race for what’s left: the global scramble for the world’s last resources’, Michael T. Clare, Metropolitan Books, 2012, pp.118-123.

<sup>23</sup> ‘Gas Works? Shale gas and its policy implications’, Policy Exchange, February 2012, p.42:

<http://www.policyexchange.org.uk/images/publications/gas%20works%20-%20feb%2012.pdf>.

<sup>24</sup> <http://www.guardian.co.uk/environment/2012/sep/13/uk-dash-gas-illegal-climate-committee>.

<sup>25</sup> ‘What the Frack? Shale Gas will not solve Britain’s energy problems’, The Economist, 1 October 2011:

<http://www.economist.com/node/21530995>

<sup>26</sup> Bradford Council’s ‘Framework for Action’ on climate change says the following in relation to our limited reserves of natural resources: “Some raw materials exist in finite amounts – the Earth’s just not making any more oil, limestone, copper and other minerals. Our aim for Bradford District is to recognise the risks that scarcity can impose on the services that we deliver both in terms of continuity of supply and rising costs”. ‘Our District, Our Climate, Our Responsibility’, Bradford Council, 2012, p.23: <http://www.bradford.gov.uk/NR/rdonlyres/398FF4E4-A46F-4FFC-90CB-F19936E81594/0/OurDistrictOurClimateOurResponsibility.pdf>.

<sup>27</sup> ‘Peaking of World Oil Production: Impacts, Mitigation and Risk Management’, Robert Hirsch *et al*, commissioned by the US Department of Energy and published in February 2005. A concise summary of this report was published in the Atlantic Council Bulletin in October 2005 (Vol. XVI, No.3): [http://www.acus.org/docs/051007-Hirsch\\_World\\_Oil\\_Production.pdf](http://www.acus.org/docs/051007-Hirsch_World_Oil_Production.pdf).

### 3.3 Mitigating the impact of rising fossil fuel costs

The cost of non-renewable energy is going up. The spot price of a barrel of Brent crude oil (\$107 in mid-2012) has quadrupled in the past decade.<sup>28</sup> The price of coal has doubled in the past fifteen years.<sup>29</sup> Domestic gas prices in the UK increased by 121% between 2004 and 2011.<sup>30</sup> Fuel costs in the UK have doubled in the past decade.<sup>31</sup>

These price increases explain the Council's rising energy bills in recent years. By 2008-2009, Bradford Council (including the District's 200 schools) spent £15 million on gas and electricity. These were unprecedented bills that had doubled in the previous four years alone.<sup>32</sup> In the same year, Bradford Council spent approximately £12 million on fuelling and managing its fleet of vehicles.<sup>33</sup> Three years on, Bradford Council's gas and electricity bills (including street lighting, but excluding schools) cost the Council £7.4 million per year despite the introduction of a range of energy efficiency measures.<sup>34</sup> In addition, as mentioned above, the Council and the schools currently pay a CRC levy to the government of over £800,000 annually. These expenses soak up financial resources that would be better spent on other Council services; and all of this money flows out of our District's economy into the hands of the energy multinationals and the government to the detriment of local businesses in Bradford.

These trends are likely to continue in future; in the longer term, they could accelerate as fossil fuel supplies peak worldwide.<sup>35</sup> According to the Council's Environment and

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<sup>28</sup> US Energy Information Administration: <http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RBRT&f=D>.

<sup>29</sup> By way of illustration, US Department of Energy data shows a rise in the approximate price of coal per short ton from \$18 in 1998 to \$36 in 2010: <http://www.eia.gov/totalenergy/data/annual/showtext.cfm?t=ptb0709>.

<sup>30</sup> 'Energy Prices', House of Commons Library Standard Note, SN/SG/4153, Paul Bolton, July 2012, p.12:

[www.parliament.uk/briefing-papers/SN04153.pdf](http://www.parliament.uk/briefing-papers/SN04153.pdf).

<sup>31</sup> <http://www.guardian.co.uk/money/interactive/2011/mar/23/petrol-prices-diesel-unleaded-crude-oil-interactive>.

<sup>32</sup> Cited in a speech by Cllr Kevin Warnes to Bradford Council, opening the debate about Energy Procurement Costs, 19 January 2010.

<sup>33</sup> 'Bradford Council's Carbon Management', Link Member Report by Cllr Kevin Warnes, adopted by the Environment and Waste Management Improvement Committee, Bradford Council, 24 November 2009, p.66 (available on the Bradford Council committee agenda, reports and minutes web pages for the 2009-2010 municipal year, listed as Appendix A to Document K): <http://councilminutes.bradford.gov.uk/wps/portal/cm>.

<sup>34</sup> Information provided by the Environment and Climate Change Unit for this Report, September 2012.

<sup>35</sup> In 2010, the International Energy Agency predicted that crude oil prices would nearly double between 2009 and 2035, and that short term price volatility would remain a feature of the market. 'World Energy Outlook 2010, Executive Summary', International Energy Agency, p.6: [http://www.worldenergyoutlook.org/media/weowebiste/2010/WEO2010\\_es\\_english.pdf](http://www.worldenergyoutlook.org/media/weowebiste/2010/WEO2010_es_english.pdf). The UK Department for Energy and Climate Change's 'central' forecasts for oil prices by 2030 are significantly higher than

Climate Change Unit, “the industry as a whole predicts the cost of gas and electricity will rise by approx ten to fifteen percent per year for the foreseeable future”.<sup>36</sup> The energy firm SSE increased its gas and electricity prices by an average of 9% in October 2012, consistent with overall trends in energy prices in 2010 and 2011.<sup>37</sup> The other energy companies quickly followed suit: by the end of 2012, British Gas fuel bills are set to rise by 6%, Scottish Power bills by 7% and Npower bills by 9%.<sup>38</sup> These price increases will load at least £500k on to Bradford’s Council’s annual energy bills and illustrates that our energy costs will increase significantly if we continue to rely almost exclusively on fossil fuels in the way that we do. This, in turn, will exert even greater pressure on Bradford’s revenue spending than we have experienced in recent years.

All is not lost, however. Churchill was surely right when he observed that there is “opportunity in every difficulty”. As fossil fuel costs increase, the relative affordability of renewable energy improves. In other words, investing in renewable energy technologies will become more favourable. This could take the form of investing in new local renewables capacity. It could also take the form of ‘buying in’ green electricity from market providers - the ‘Good Energy’ power company, for example, has not raised its price for domestic electricity since April 2009.<sup>39</sup> These trends will reinforce the scope for Bradford Council (or even the Leeds City Region as a whole) to negotiate contracts with pioneering renewable energy companies like Good Energy or Ecotricity to procure green electricity in future years. Bradford will have to pay more for its energy in future than it does today – that is unavoidable. But we also have a golden opportunity to exploit clean, affordable energy on a large scale for the first time since the dawn of the industrial revolution.

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the IEA predictions; in fact, DECC’s ‘high’ price scenario predicts an upper oil price of \$170bbl that is nearly \$60 more than the IEA forecast. DECC also predicted that UK gas prices would increase by at least 50% between 2010 and 2020. ‘DECC Fossil Fuel Price Projections, Summary’, October 2011, pp.11-12: <http://www.decc.gov.uk/assets/decc/11/about-us/economics-social-research/2933-fossil-fuel-price-projections-summary.pdf>.

<sup>36</sup> Information provided for this report by the Environment and Climate Change Unit, July 2012.

<sup>37</sup> <http://www.bbc.co.uk/news/business-19347503>.

<sup>38</sup> <http://www.bbc.co.uk/news/business-19952457>.

<sup>39</sup> [http://www.goodenergy.co.uk/switch-now?gclid=CN\\_8872dpLICFSPHtAodFnUAww](http://www.goodenergy.co.uk/switch-now?gclid=CN_8872dpLICFSPHtAodFnUAww).

### 3.4 Building greater economic resilience in Bradford

Bradford's energy costs are a drain on our local economy and erode its resilience. The Centre for Low Carbon Futures estimates that Bradford District's annual energy bill was £689 million in 2011 and that this will rise to £947 million by 2022.<sup>40</sup> Bearing recent energy price trends in mind, this is arguably a conservative estimate. In any case, these energy payments flow out of our local economy to companies that are not based in the District – indeed, the UK as a whole spent approximately £14 Billion importing energy in 2008.<sup>41</sup> These businesses employ some local staff and invest in local goods and services to an extent, but a 'business as usual' approach to energy procurement that relies on fossil fuels will leave Bradford and its residents powerless to resist price increases imposed on our District by the wider energy markets. Switching energy suppliers to save money has limited utility when they are all jacking up their prices.

The Centre for Low Carbon Futures suggests that "Bradford could...insulate itself against projected energy price increases to a very large extent through investments in energy efficiency and low carbon options".<sup>42</sup> This investment would release longer term savings that could be spent and invested locally in ways that will build greater resilience into the District's economy, as is already beginning to happen in places like Saltaire (where Sustainable Saltaire is working with local households and businesses to save energy and invest in local renewable energy projects).<sup>43</sup> The substantial income from new renewable energy generation within Bradford District would also remain here and be available for use by the investors who provided the start-up capital – in other words, individual Bradfordians, community energy groups, third sector organisations, private sector companies and, of course, the Council.

The substantial investment needed to enable Bradford District to decarbonise its energy use and boost its access to renewable energy will therefore be a valuable, sustainable investment in our *local* economy and a means of exerting more control

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<sup>40</sup> 'A Mini-Stern Review for Bradford: The Economics of Low Carbon Development', Andy Gouldson et al, Centre for Low Carbon Futures, 2011, p.4: [http://www.lowcarbonfutures.org/assets/media/CLCF\\_LA\\_LCC\\_Bradford.pdf](http://www.lowcarbonfutures.org/assets/media/CLCF_LA_LCC_Bradford.pdf).

<sup>41</sup> This is the figure for 2008, provided by the Centre For Alternative Technology in its factsheet for teachers: <http://www.zerocarbonbritain.com/resources/zcb-for-teachers>

<sup>42</sup> 'A Mini-Stern Review for Bradford: The Economics of Low Carbon Development', Andy Gouldson et al, Centre for Low Carbon Futures, 2011, p.5: [http://www.lowcarbonfutures.org/assets/media/CLCF\\_LA\\_LCC\\_Bradford.pdf](http://www.lowcarbonfutures.org/assets/media/CLCF_LA_LCC_Bradford.pdf).

<sup>43</sup> For more information, visit Sustainable Saltaire's website at <http://sustainablesaltaire.org/>.

over our economic destiny. It is estimated that over a million people in the UK will be employed by 2015 in low carbon technology jobs and green industries and there is no reason why Bradford should not be at the forefront of this process of radical economic change.<sup>44</sup>

The Centre for Low Carbon Futures estimates that almost £2 billion is required by 2022 to exploit all of the realistic potential for energy saving and renewable energy generation in the District. This is, at first glance, an eye-wateringly high level of investment. But it would be spread over ten years and would deliver a huge carbon reduction for the whole District of 49% by 2022 (compared to 1990). It would also create nearly 1,500 jobs and boost Bradford's economy by £68 million annually; and, crucially, the short payback timescales for the energy projects would range from four to eight years.<sup>45</sup> In other words, this valuable capital investment would pay for itself several times over by yielding revenue savings and income for decades and Bradford Council could be at the forefront of this 'future-proofing' process.<sup>46</sup>

Poorer residents are, of course, the most vulnerable of all local people to rising energy prices and the risks of energy insecurity. Fuel poverty is a significant problem in the UK and Bradford is no exception. It is estimated that there are at least 33,000 fuel poor households in Bradford District, a higher proportion than our neighbouring metropolitan Districts. This is particularly serious given that West Yorkshire as a whole is disproportionately 'fuel poor' compared to the rest of England.<sup>47</sup>

Clearly, measures that reduce energy bills for poorer residents will help alleviate poverty and inequity in our District and build greater resilience in relation to future fossil fuel energy shortages – examples include grants for home insulation or social housing that incorporates solar photovoltaics (PV) and thereby reduces the need for householders to import electricity into their home from the grid. The award-winning work of Change Agents UK in helping residents tackle fuel poverty is a model that

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<sup>44</sup> 'Department for Business, Innovation and Skills Sustainable Development Action Plan, August 2009 – March 2011', p.28: <http://www.bis.gov.uk/assets/biscore/business-sectors/docs/09-p59-bis-sustainable-development-action-plan-2009-11>.

<sup>45</sup> 'A Mini-Stern Review for Bradford: The Economics of Low Carbon Development', Andy Gouldson et al, Centre for Low Carbon Futures, 2011, pp.5-6: [http://www.lowcarbonfutures.org/assets/media/CLCF\\_LA\\_LCC\\_Bradford.pdf](http://www.lowcarbonfutures.org/assets/media/CLCF_LA_LCC_Bradford.pdf).

<sup>46</sup> The government has set the annual rate of return for the Renewable Heat Incentive scheme, for example, at 12%: [http://www.icax.co.uk/Renewable\\_Heat\\_Incentive.html](http://www.icax.co.uk/Renewable_Heat_Incentive.html).

<sup>47</sup> 'Working Together for a Warmer Future', Bradford Council Report, March 2007, p.5: [http://bradford.limehouse.co.uk/portal/prosperity\\_regeneration/working\\_together\\_for\\_a\\_warmer\\_future\\_an\\_affordable\\_warmth\\_strategy\\_for\\_the\\_bradford\\_District?tab=files](http://bradford.limehouse.co.uk/portal/prosperity_regeneration/working_together_for_a_warmer_future_an_affordable_warmth_strategy_for_the_bradford_District?tab=files).



could perhaps be developed in Bradford as well.<sup>48</sup> The Centre for Sustainable Energy also works closely with councils and community organisations to maximise energy efficiency, develop renewable energy projects and deal with fuel poverty.<sup>49</sup> Every encouragement could be given to householders to use the government's Green Deal programme to obtain loans to insulate their homes (on the basis that the savings in their energy bills will enable these loans to be repaid). District heating schemes could also be part of Bradford's future energy mix, incorporating renewable sources of energy via biomass and Anaerobic Digestion technologies. New 'zero carbon' social housing built by the Council, to Code 6 standards, would provide local families with ultra low cost energy bills. The Council could also do more to facilitate the creation of community energy groups whose members are able to invest affordably in local renewable energy projects and work with partner organisations and access other sources of start-up funds. Bradford Council could therefore play an important role in enabling access to clean energy for the District's poorer residents and reducing their vulnerability to the rising energy costs associated with fossil fuels – and we need to start planning to do so as quickly as possible.



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<sup>48</sup> <http://www.rutland-times.co.uk/news/environment/energy-saving-project-scoops-national-award-1-3758267>.

<sup>49</sup> <http://www.cse.org.uk/pages/>.

## 4. Renewable Energy Policy in Bradford

Bradford Council has been thinking about the challenges posed by peak oil and climate change for at least the past five years, as reflected in a series of policy and organisational changes.

Bradford Council recognises that peak oil – and, by extension, the District’s longer term energy security – is a challenge that needs to be incorporated into its economic strategising. In October 2007, the Council noted “the challenges of preparing ourselves for the transition to a post-oil economy that is likely to become unavoidable within thirty years” and expressed concern “about the absence of specific initiatives to encourage local economic self-reliance throughout the District”. The Council therefore requested that the Executive revise its economic strategy and “develop a detailed, robust response to the overriding economic challenges of Climate Change and Peak Oil”.<sup>50</sup>

Two years later, in January 2010, Bradford Council (with all-party support) set an ambitious renewable energy target for its corporate energy procurement. The Council acknowledged that investing in local renewable energy generation “can yield significant annual revenue savings”; accepted that “reducing its use of gas, electricity and heating oil and investing in renewables are all essential for working towards cutting its energy costs over the next decade” and that this would “help to secure a more sustainable financial future for the Council and for the District as a whole”; and acknowledged that “the Council has a leadership role to play in promoting energy efficiency and investment in renewables throughout the District”. The Council also resolved “to ensure that at least 20% of the current energy requirements of the Council’s estate are met by renewable energy by 2020, preferably sourced within the District”, as part of the drive to cut the Council’s overall carbon emissions by 40% by the end of the decade. There is, therefore, a very clear commitment that the Council

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<sup>50</sup> Council Minutes, 16 October 2007, pp.34-35:

[http://councilminutes.bradford.gov.uk/wps/portal!ut/p/c5/dYzNCoJAFEafpSe413HUaTIN5RQpaWk2GzEMUfIHGhR9-gRpV-dbfpwDCuY1WV8WmS7bJntBAspOkVFOjoRyHBkxdq6MGS7ADRk6aVinTfq5DSJ\\_lpNwehtq0FP3NAORz9\\_nPM4jDZcy\\_Mo33rOjflUE7\\_V5f8DR\\_BIWz\\_hDspJBVKCLNzYJhWIBy9cR\\_E-QnRN6Oq-k0Ox-gDkkCb1/dl3/d3/L0IDU0IKSkthWWtLQ2xFQSEvb01vZ0FFSVFoakJLRVFBQUFFWkNnR1E0S1FwY0VBISEvNEMxYjIX05yeFFERVNaSUpsSQ0EvN19DMDQyMDhSQjYzNEMWMEINUjIVVkvZVMDBHMy8yMDEwNzg1OTY5NzEvZG9jLzExMTI!/#7C04208RB634C00IMR9UVFU00G3](http://councilminutes.bradford.gov.uk/wps/portal!ut/p/c5/dYzNCoJAFEafpSe413HUaTIN5RQpaWk2GzEMUfIHGhR9-gRpV-dbfpwDCuY1WV8WmS7bJntBAspOkVFOjoRyHBkxdq6MGS7ADRk6aVinTfq5DSJ_lpNwehtq0FP3NAORz9_nPM4jDZcy_Mo33rOjflUE7_V5f8DR_BIWz_hDspJBVKCLNzYJhWIBy9cR_E-QnRN6Oq-k0Ox-gDkkCb1/dl3/d3/L0IDU0IKSkthWWtLQ2xFQSEvb01vZ0FFSVFoakJLRVFBQUFFWkNnR1E0S1FwY0VBISEvNEMxYjIX05yeFFERVNaSUpsSQ0EvN19DMDQyMDhSQjYzNEMWMEINUjIVVkvZVMDBHMy8yMDEwNzg1OTY5NzEvZG9jLzExMTI!/#7C04208RB634C00IMR9UVFU00G3)

will seek to invest in renewable energy generation in our District during the current decade.<sup>51</sup>

These priorities are reflected in the remit of the new Environment and Climate Change Unit, launched in 2010 to spearhead the Council's drive to become more environmentally sustainable in general and to deal with its carbon footprint in particular. The unit provides "a corporate focus on environmental impact and use of natural resources", is developing "a deeper and systemic understanding of the natural, physical and energy resources the Council needs, and how it uses them in order to radically improve the efficiency, effectiveness and sustainability of the organisation", and is coordinating and facilitating a "managed reduction and increased efficiency in the use of natural resources, with a focus in the short term on energy, water, fuel management, organisational waste and CO2 emissions".<sup>52</sup> The unit is, therefore, at the heart of the Council's drive to develop renewable energy across the District and provides the Council with some of the organisational capacity it needs in order to respond to the challenges of peak oil and climate change.

Bradford's 'Big Plan' Sustainable Community Strategy for 2008-2011 also acknowledged the importance of dealing with climate change and responding to the challenges of peak oil. The Strategy identified a 'shared outcome' of minimising "carbon emissions...and our reliance on oil" and, as mentioned earlier, accepted that "resources such as oil and gas are limited and will become increasingly expensive".<sup>53</sup> It accepted that "the way we live is wasting resources, and damages our climate" and that Bradford's communities "can work together to change the way we use energy and resources so that local action can have a global effect". It also recognised that this would "require us all to make difficult choices – as individuals,

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<sup>51</sup> Council Minutes, 19 January 2010, pp.48-49:

[http://councilminutes.bradford.gov.uk/wps/PA\\_CommitteeMinutes/DisplayDocServlet?docID=4618](http://councilminutes.bradford.gov.uk/wps/PA_CommitteeMinutes/DisplayDocServlet?docID=4618).

<sup>52</sup> 'Report of the Strategic Director of Environment and Neighbourhoods to the meeting of the Environment and Waste Management Improvement Committee to be held on 29 September 2009', listed as 'Document E' on Bradford Council's agendas/minutes page for the EWM Committee, Appendix B, p.2:

[http://councilminutes.bradford.gov.uk/wps/PA\\_CommitteeMinutes/CallDisplayDocServlet?docID=env29septDocE.pdf](http://councilminutes.bradford.gov.uk/wps/PA_CommitteeMinutes/CallDisplayDocServlet?docID=env29septDocE.pdf).

<sup>53</sup> 'The Big Plan for the Bradford District 2008-2011: Our Sustainable Community Strategy', published by Bradford Council on behalf of the Bradford District Partnership, October 2008, p.53: <http://www.bradford.gov.uk/NR/rdoonlyres/27B61414-0FE5-4B01-BE12-2E96A67D5C5E/0/BigPlanFullVersion.pdf>.

families and organisations”.<sup>54</sup> The Big Plan went on to state the following in relation to the Partnership’s environmental priorities for the District, with particular emphasis on the leadership role expected from Bradford Council: “We will create a more sustainable environment to positively affect climate change. We aim to use resources efficiently, minimising energy and water use, re-using as much as possible, and expanding the use of renewable energy and locally sourced fuels. The Council will be an exemplar of good practice, and will provide leadership to support organisations and communities to reduce consumption of carbon-based fuels and understand the importance of sustainable design, production and consumption. These approaches to manage carbon and our impact on climate change will also result in more sustainable transport, improved air quality and water management”.<sup>55</sup> As part of that endeavour, the Partnership highlighted the importance of “expanding the use of renewable energy and locally sourced fuels”.<sup>56</sup>

Bradford’s new ‘Community Strategy’ for 2011-2014 does not explicitly identify the need to respond to peak oil or climate change as part of its overall ‘vision’ or its ‘transformational priorities’ (p.4). However, one of the Strategy’s aims is to “create a greener, cleaner and more sustainable environment which makes best use of our resources and positively affects climate change” (p.12). The Strategy goes on to explain that the Bradford District Partnership will “use resources efficiently, minimising energy and water use...and expanding the use of renewable energy and locally sourced fuels”, and that the Partnership will “work together across sectors and within our neighbourhoods and communities” with the aim of “reducing the carbon footprint of individuals, households and businesses by minimising energy use and maximising the use of renewable resources” (p.12).<sup>57</sup> This presumably means that the Council will seek to establish partnerships with local firms, ‘third sector’

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<sup>54</sup> ‘The Big Plan for the Bradford District 2008-2011: Our Sustainable Community Strategy’, published by Bradford Council on behalf of the Bradford District Partnership, October 2008, p.8: <http://www.bradford.gov.uk/NR/ronlyres/27B61414-0FE5-4B01-BE12-2E96A67D5C5E/0/BigPlanFullversion.pdf>.

<sup>55</sup> ‘The Big Plan for the Bradford District 2008-2011: Our Sustainable Community Strategy’, published by Bradford Council on behalf of the Bradford District Partnership, October 2008, p.54: <http://www.bradford.gov.uk/NR/ronlyres/27B61414-0FE5-4B01-BE12-2E96A67D5C5E/0/BigPlanFullversion.pdf>.

<sup>56</sup> ‘The Big Plan for the Bradford District 2008-2011: Our Sustainable Community Strategy’, published by Bradford Council on behalf of the Bradford District Partnership, October 2008, p.55: <http://www.bradford.gov.uk/NR/ronlyres/27B61414-0FE5-4B01-BE12-2E96A67D5C5E/0/BigPlanFullversion.pdf>.

<sup>57</sup> ‘Community Strategy 2011-14 for Bradford District’: <http://www.bradford.gov.uk/NR/ronlyres/4E31EC78-923A-47A2-BC81-176CA1BD8554/0/CommunityStrategy1114.pdf>.

organisations and individuals to share investment in local electricity generation, perhaps in the form of new ‘community interest companies’.

More broadly, renewable energy investment will make a positive contribution to other core elements of the Community Strategy. To begin with, it is difficult to imagine a “vibrant, prosperous” District that is “secured for future generations” that relies exclusively on expensive, imported, polluting non-renewable energy rather than exploiting its own potential for local, clean renewable energy (p.16). Renewable energy projects will make a sizeable contribution to the strategic aim of delivering “economic development without compromising the quality of life of future generations” and, particularly if they involve local communities, will also help “raise the economic wellbeing of the people across the district” (p.16). Finally, Community-owned renewable energy projects, whether or not in partnership with the Council, will also contribute towards the strategic aim of devolving “influence and decision making, commissioning and resources to localities” (p.16).<sup>58</sup>

Finally, it is worth mentioning that the Leeds City Region Local Enterprise Partnership (LEP) aims to deliver “the UK’s leading low carbon city region” and accepts that the “Leeds City Region could reduce its carbon emissions by 40% by 2022”. In a report published in July 2012, the Partnership specifically promised over the next 12 months to “develop a portfolio of renewable energy and retrofit projects”.<sup>59</sup> Bradford Council is, of course, represented on the Leeds City Region LEP Board and is no doubt fully committed to the low carbon goals of this key regional organisation.

In all, therefore, it is fair to say that there plenty of ambition as far as the declared strategic aims mentioned above are concerned. The challenge is to translate these into far-reaching actions and transformative change on the ground in the communities where we all live.



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<sup>58</sup> ‘Community Strategy 2011-14 for Bradford District’: <http://www.bradford.gov.uk/NR/rdonlyres/4E31EC78-923A-47A2-BC81-176CA1BD8554/0/CommunityStrategy1114.pdf>.

<sup>59</sup> ‘Unlocking our Economic Potential: a Leeds City Region Deal’, Leeds City Region, July 2012, p.24: <http://www.leedscityregion.gov.uk/uploadedFiles/News/Articles/LCR%20Cities%20Deal%20Proposal%20SHORT%20280612.pdf>.

## 5. Where are we now?

Bradford Council consumes approximately 29,000MWh of electricity and 54,600MWh of gas each year. In addition, Bradford's schools consume approximately 45,300MWh of electricity and 86,400MWh of gas. In total, therefore, the Council and schools together consume 74,300MWh of electricity and 141,000MWh of gas.<sup>60</sup> The combined carbon footprint of this energy consumption was 69,000 tonnes in 2011-2012.<sup>61</sup> This tonnage includes the carbon pollution produced by the 2.5 million litres of fuel burned by the Council's large fleet of vehicles each year.

The Council purchases its electricity from Npower (acquired by the German company RWE in 2002) and its gas from British Gas (owned by Centrica). This is broadly true for the schools as well, though some of them procure their electricity and gas from other suppliers rather than via the main schools contract with the Yorkshire Purchasing Organisation. As mentioned earlier, these contracts cost Bradford Council £7.4 million a year (excluding schools, whose bills are presumably even higher) and will nearly all expire by October 2014 (a new five year gas contract was recently negotiated by the Council). Very little (9%) of the grid electricity purchased by Bradford Council and the District's schools is generated renewably ('green electricity'), and less than 0.1% of the Council's energy needs is provided locally by renewable sources. Overall, therefore, 91% of the electricity used by the Council and our schools is generated unsustainably by gas, coal and nuclear power stations, none which are located in the District or controlled by local people or organisations. The picture is even worse as far as our gas procurement is concerned.<sup>62</sup>

Bradford Council and some local schools are beginning to invest in small scale, locally-sourced renewable energy. The Council has installed two new solar PV arrays at St James Market and the Harris Street depot, for example, which provide

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<sup>60</sup> In the 2011-2012 financial year, according to figures provided for this report by the Environment and Climate Change Unit in July 2012, Bradford Council consumed 28,930,359.4KWh of electricity and 54,594,716KWh of gas. Bradford's schools consumed 45,251,188.5KWh of electricity and 86,389,338KWh of gas.

<sup>61</sup> Data provided orally by Richard Williamson, head of the Environment and Climate Unit, to the Environment and Waste Management Overview and Scrutiny Committee meeting on 24 July 2012.

<sup>62</sup> Information provided for this report by the Environment and Climate Change Unit, July 2012.

the equivalent of 0.075% of the Council's overall energy consumption. More promisingly, solar PV, solar thermal, anaerobic digestion, biomass boilers and hydro projects are being developed across the Council's estate, primarily with capital funding, and some schools are currently utilising solar PV, wind turbines and air-sourced heat pump technology. These planned projects will not in themselves decisively recalibrate the Council's reliance on 'importing' non-renewable energy from beyond our District, but they are nonetheless a significant starting point in that they are expected to provide 13.7% of the Council's energy requirements by 2015 (10,195MWh) and will represent a total investment of just over £10 million (about half of this will be funded by the Council).<sup>63</sup> If implemented, they will go a long way towards meeting the Council's 20% renewable energy targets for 2020, but much more will clearly need to be done as far as the Council is concerned (both before and after 2020) and in terms of developing renewable power generation across Bradford District as a whole.



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<sup>63</sup> Information provided for this report by the Environment and Climate Change Unit, September 2012.

## 6. Where do we need to be by 2020?

It is impossible to predict precisely what Bradford Council's energy requirements will be in 2020 given the ongoing changes to the Council's funding and delivery structures, its asset requirements and developing estate strategy. The analysis that follows, therefore, is not definitive. It is a tentative attempt to broadly sketch out and illustrate for elected colleagues how Bradford Council might seek to achieve its 2020 energy and carbon reduction targets. It is the responsibility of the Environment and Climate Change Unit and their colleagues to provide the more detailed strategy and action planning that is needed to guide the Council's ongoing multi-million pound low carbon investments. We do not have that at present and, inevitably, any strategising and action planning of this sort will need to be an evolving process rather than a document that is 'set in stone' for the duration of the 2012-2020 period.

As mentioned above, Bradford Council's current combined annual electricity and gas use is approximately 84,000MWh. This figure does NOT include the energy use of the District's schools as they are responsible for managing their own energy needs. It is reasonable to assume that efficiency measures by 2020 will further reduce the Council's energy consumption by at least 15%.<sup>64</sup> The Council has already achieved impressive energy savings in the two years since the Environment and Climate Change Unit was established in 2010 and these savings are expected to continue, albeit at a declining rate given that the most impressive energy efficiencies (the so-called 'low-hanging fruits') with the best financial payback times are presumably being identified and achieved early on. So, if we assume further energy efficiencies of 15% by 2020, the Council's annual combined electricity and gas consumption by then will be around 70,000MWh.

The 70,000MWh figure does not, though, include the energy use associated with the fuel consumption of the council's vehicles. This has to be added to the mix. In 2011-2012, as mentioned earlier, Council vehicles burned approximately 2.5 million litres of fuel, consuming approximately 25,000MWh of energy (10KWh per litre) and

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<sup>64</sup> In fact, the Environment and Climate Change Unit anticipates that the Council will seek to reduce its utility bills during the next three financial years by 5%, 8% and 3% respectively.



emitting approximately 6,500 tonnes of CO<sub>2</sub>e pollution.<sup>65</sup> For the purposes of this report, it is fair to assume that this level of fuel consumption will have been reduced by 20% by 2020 through further 'Safe and Fuel Efficient Driving' (SAFED) training and other efficiencies, to approximately 20,000MWh. The Council has already reduced its fuel consumption by roughly a sixth since 2007, so this seems to be a reasonable prediction. In all, therefore, the Council's overall energy use (electricity and gas use for power and heating, plus vehicle fuel consumption) may well total around 90,000MWh by 2020.

As noted already, Bradford Council committed itself in January 2010 to sourcing a minimum of 20% of its overall energy requirements from renewable energy, preferably generated within the District, by 2020. Remember, this is in addition to cutting its overall use of energy by 20% by 2020 compared to 2010. This means that, in order to meet its 20% renewable energy target, Bradford Council will ideally need to generate at least 18,000MWh annually from renewable energy sources by 2020. This key figure, 18,000MWh, is the one to bear in mind as far as the following analysis of our renewable energy options for 2020 is concerned.



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<sup>65</sup> I am assuming that DEFRA and the Carbon Trust are broadly correct in their estimates of how much energy (KWh) and carbon pollution (CO<sub>2</sub>e) is generated by burning a litre of petrol or diesel fuel:  
<http://www.carbontrust.com/resources/reports/advice/conversion-factors>. See also  
<http://archive.defra.gov.uk/environment/business/reporting/pdf/envrpgas-annexes.pdf>.

## 7. What is the potential for renewable energy in Bradford District?

The UK as a whole has a population density of 257 per km<sup>2</sup> and among the highest levels of power consumption per person in the world.<sup>66</sup> Bradford District's population density is far higher than the UK average, at 1383 per km<sup>2</sup>.<sup>67</sup> This suggests, in turn, that Bradford District *as an area of land* is characterised by a relatively high level of domestic power consumption (though lower in terms of CO<sub>2</sub> per head of population). This is, perhaps, not the best place to start from if we are seeking to 'power down' and decarbonise our activities and build as much local renewable energy capacity as possible in order to improve our economic resilience in a world of rising fossil fuel prices. But, nonetheless, we have to start from where we are and not from where we would ideally wish to be.

Fortunately, there is also significant potential for developing renewable energy in Bradford and across the wider Yorkshire region. Several recent reports have been published which indicate that Bradford Council, its partner organisations, local people and businesses have a good range of renewable energy investment opportunities across our District.

First, the AECOM report for Local Government Yorkshire and Humber published in 2011 indicates that the Leeds City Region as a whole has the *maximum potential* to develop approximately 5,500MW of renewable energy generating capacity by 2025 (3,600MW of renewable electricity, excluding offshore wind, and 1,900MW of renewable heat). This would deliver approximately 16,100GWh of renewable energy annually.<sup>68</sup> As far as Bradford District is concerned, the AECOM report estimates that our total renewable energy potential is 259MW – albeit bearing in mind that significant constraints that would make this maximum output difficult to achieve. This consists of a potential 120MW of renewable electricity (including 70MW from

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<sup>66</sup> For population statistics, see Office for National Statistics: <http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcn%3A77-268725>. For power consumption data, see 'Zero Carbon Britain 2030: A New Energy Strategy', Centre for Alternative Technology, 2010, p.238: <http://zerocarbonbritain.org>.

<sup>67</sup> [http://www.bradford.gov.uk/bmdc/community\\_and\\_living/population](http://www.bradford.gov.uk/bmdc/community_and_living/population).

<sup>68</sup> 'Low Carbon and Renewable Energy Capacity in Yorkshire and Humber: Final Report', AECOM, for Local Government Yorkshire and Humber, April 2011, p.8: <http://www.yourclimate.org/pages/low-carbon-renewable-energy-capacity-yh>.

commercial wind) and 139MW of renewable heat able to provide a total of 682GWh of renewable energy annually.<sup>69</sup> The report also suggests that Bradford has “significant potential” to support a biomass district heating network along lines pursued by other urban centres including Barnsley in recent years.<sup>70</sup> These indicative figures are accepted by Bradford Council as an *indication of the potential* for local renewable energy across our District.<sup>71</sup>

Second, the 2009 Regional Spatial Strategy (RS) report published by the Department for Communities and Local Government provides another estimate of the ‘Indicative Potential’ for renewable energy in Bradford by 2021 - in other words, the *feasible potential* for developing a range of renewable technologies within the time available and taking into account the “sensitivities associated with delivering” these resources. The report suggests that Bradford’s sub-regional renewables target as part of the RS should realistically aim to develop a minimum of 56MW of renewable capacity by 2021. This would include wind (15MW), biomass wood (6.3MW), biomass (20.2MW) and solar PV (14.3MW). The report suggests that West Yorkshire as a whole should aim to develop 272MW of renewable capacity by 2021, and that the wider Yorkshire and Humber region should develop 1,862MW including 600MW from offshore wind.<sup>72</sup>

These reports illustrate the degree to which there is not an absolute consensus about exactly how much renewable energy can practically be generated in Bradford District and the wider region. It is inevitable that particular considerations relating to our environmental ‘assets’ (the scenic beauty of our open moorland etc) and other land use constraints will complicate the challenge of realising all of this potential capacity in the next 10-20 years. Nevertheless, it appears that Bradford Council –

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<sup>69</sup> ‘Low Carbon and Renewable Energy Capacity in Yorkshire and Humber: Final Report’, AECOM, for Local Government Yorkshire and Humber, April 2011, Appendices, p.148: <http://www.yourclimate.org/pages/low-carbon-renewable-energy-capacity-yh>.

<sup>70</sup> ‘Low Carbon and Renewable Energy Capacity in Yorkshire and Humber: Final Report’, AECOM, for Local Government Yorkshire and Humber, April 2011, p.98: <http://www.yourclimate.org/pages/low-carbon-renewable-energy-capacity-yh>. The report also states specifically (on page 147) that “Bradford has the density necessary to support District heating networks. The Energy Opportunities Plan shows that there are many public buildings in the city that could provide anchor loads for such networks”.

<sup>71</sup> ‘Our District, Our Climate, Our Responsibility’, Bradford Council, 2012, p.21: <http://www.bradford.gov.uk/NR/rdonlyres/398FF4E4-A46F-4FFC-90CB-F19936E81594/0/OurDistrictOurClimateOurResponsibility.pdf>.

<sup>72</sup> ‘Renewable Energy Capacity in Regional Spatial Strategies, Final Report’, Department for Communities and Local Government, July 2009, p.306: <http://www.communities.gov.uk/documents/planningandbuilding/pdf/renewableenergyreport.pdf>.

with its extensive land holdings and building assets, significant revenue streams, substantial financial reserves, capacity for prudential borrowing, ability to draw in external funding, officer expertise and its corporate ability to forge positive working partnerships with community groups and other organisations across Bradford District and throughout the wider Leeds City Region - has plenty of scope to invest in renewable energy projects over the next eight years.

To sum up, the Council has an opportunity to make decisive progress by 2020 towards decarbonising its energy procurement - provided that it is determined to do so. Political will and speed are paramount, especially bearing in mind that 2020 is just a staging post on the route to an 80%+ decarbonisation of the UK economy as a whole by 2050 or sooner. If the Council is committed to a zero carbon future for the District, as it should logically be if it wishes to play its part in the decarbonisation of the UK as a whole, it needs to make sure it meets its own renewable energy targets for 2020.



## **8. How much will it cost Bradford Council to develop enough renewable energy to meet its 2020 targets?**

The fact that there is a lot of potential for renewable energy in our District does not, of course, mean that we can afford to exploit it as quickly as we would like to. There is a financial 'bottom line' as far as renewable energy schemes are concerned, each one of which will need to have a viable business case prior to implementation.

Predicting future energy costs is tricky, to say the least. We live in a world of volatile energy markets where the relative costs of different energy sources move up and down from month to month. UK government financial support for the renewables sector, in the form of Feed-in Tariffs and the Renewable Heat Incentive scheme, is also vulnerable to revision and uncertainty. Energy technologies and their prices are evolving constantly, as are their installation and maintenance costs. These variables complicate the task of anticipating how much investment will be required for Bradford Council to achieve its renewable energy goals.

Bearing this in mind, it must be emphasised that the cost estimates that follow are merely indicative. The precise cost will depend on what Bradford Council chooses to do in order to meet its 20% renewable energy target for 2020. Different renewable energy technologies present their own distinct sets of financial implications, costs and benefits, as outlined in more detail in the next section. But colleagues may find the analysis in this report useful, nonetheless, as a means of gaining a better broad understanding of the multi-million pound scale of the investment that will be needed to develop the Council's access to renewable energy and a better awareness of the financial benefits and greater economic security that will accrue from this kind of investment.

Broadly speaking, as already mentioned, the central thrust of this report is that the Council invests in creating its own renewable energy generating assets across the District. Indeed, it is starting to do so already as outlined in Table 1 (see next page). In addition, crucially, the report envisages that the Council will also encourage and facilitate the setting up of community energy cooperatives in which Bradford citizens

and firms also invest in renewable energy generation in partnership with the Council, thereby galvanising community support for these technologies, mobilising local finance and allowing both groups to share the profits.

**TABLE 1: THE COUNCIL'S PLANNED RENEWABLE ENERGY PROJECTS**

<b>Technology</b>	<b>Capacity</b>	<b>Generation</b>	<b>Cost</b>	<b>Timescale</b>	<b>% of total Council energy consumption</b>
St James PV	49.5KW	44,000KWh	£112,000	In place	0.05%
Harris St PV	25KW	20,000KWh	£36,000	In place	0.025%
Brittania House PV	25KW	20,000KWh	£36,000	2012	0.025%
Jacobs Well PV	25KW	20,000KWh	£36,000	2012	0.025%
Industrial Museum PV	25KW	20,000KWh	£36,000	2012	0.025%
Saltaire Hydro	86.3KW	371,000KWh	£1,200,000	2013	0.5%
Anaerobic Digestion	1000KW	5,300,000KWh	£5,000,000 (Council share of this investment in £1,700,000)	2015	7.2%
Biomass boilers	1600KW	4,400,000KWh	£2,000,000	2012-2014	6%
Energy master plan	-	-	£100,000	March 2012	n/a
<b>Total</b>		10,195,000KWh	£5,256,000		13.7%

If the Council were to implement all of the actual and planned renewable energy projects cited above in Table 1, and also invest in an additional mix of renewable energy technologies to fully meet its 20% target, the capital costs would range from approximately £12 million to at least £20 million. Wind turbines, biomass heating, hydroelectricity and solar PV and solar thermal are all financially viable despite their variable capital investment requirements at the outset.

The investment required is, indeed, significant; but it could be shared with co-investors and, in any event, would all be recouped by energy savings and the guaranteed income streams (Feed-in Tariffs, Renewable Heat Incentive scheme etc) that these projects would generate. And Bradford will not be alone in this brave new world of sustainable energy investment: as discussed below, Bristol Council's planned capital investment in renewable energy between now and 2015 already runs into the tens of millions.

The reality is that there are no cheap options – assuming that Bradford Council is determined to achieve its own 2020 renewable energy targets. Fossil fuel prices are rising and the capital cost of new renewable energy capacity is expensive in the short term. More positively, though, it is imperative to emphasise that the payback times on renewable energy investments are typically relatively short and predictable and that this form of capital investment yields significantly lower energy bills and generates income for decades. To take two examples, the investment required for the Council's 50KW solar array at the St James Wholesale Market and the proposed Saltaire hydropower scheme will be paid back in 10-12 years.<sup>73</sup> This holds true for larger schemes as well, as cited later on in this report in relation to the 22.5MW proposals for 'repowering' Ovenden Moor Wind Farm that were recently approved. Bristol Council's two planned 3MW wind turbines will apparently cost a total of £9.4 million to install and will generate annual returns of around £1 million (more details of Bristol's plans are also provided below).<sup>74</sup>

Overall, the payback times for the energy saving and renewable energy projects envisaged by the 'Mini-Stern Review for Bradford' range from four to eight years.<sup>75</sup> If Bradford Council invested, say, £2.5 million in a 2MW solar PV farm, it could expect returns of around 10% per annum.<sup>76</sup> This would be similar for a 2MW wind turbine, costing approximately £2 million, whose annual output of approximately 4,000MWh

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<sup>73</sup> For information about the St James Market solar array, see [http://www.bradford.gov.uk/bmdc/government\\_politics\\_and\\_public\\_administration/news/market\\_solar\\_panels](http://www.bradford.gov.uk/bmdc/government_politics_and_public_administration/news/market_solar_panels). For information about the Saltaire hydropower scheme, see: 'Final Feasibility Study': [http://www.bradford.gov.uk/NR/rdonlyres/C2D84C0C-3D48-49AE-BED3-477D57226990/0/2011s5535FinalReport\\_ISSUED.pdf](http://www.bradford.gov.uk/NR/rdonlyres/C2D84C0C-3D48-49AE-BED3-477D57226990/0/2011s5535FinalReport_ISSUED.pdf).

<sup>74</sup> [http://www.local.gov.uk/web/guest/home/-/journal\\_content/56/10171/3511241/ARTICLE-TEMPLATE](http://www.local.gov.uk/web/guest/home/-/journal_content/56/10171/3511241/ARTICLE-TEMPLATE).

<sup>75</sup> 'A Mini-Stern Review for Bradford: The Economics of Low Carbon Development', Andy Gouldson et al, Centre for Low Carbon Futures, 2011, pp.5-6: [http://www.lowcarbonfutures.org/assets/media/CLCF\\_LA\\_LCC\\_Bradford.pdf](http://www.lowcarbonfutures.org/assets/media/CLCF_LA_LCC_Bradford.pdf).

<sup>76</sup> <http://www.thisislincolnshire.co.uk/Solar-farm-near-Lincoln-adds-8-300-panels/story-16678600-detail/story.html>.

could generate a tax free, index-linked Feed-in Tariffs income of nearly £200K for 20 years (in addition to providing substantial quantities of free electricity for the Council as well).<sup>77</sup>

Looking ahead, strategically, the Council could for example embark on a ten year investment strategy of taking £2 million annually from its strategic reserves to invest in renewable energy projects. Assuming an average rate of return on these projects of 10% per annum, this level of investment would create a self-sustaining fund after a decade that would continue to generate further funds to reinvest in new renewable energy capacity at no net cost to the council for the foreseeable future *provided that the income from all of these projects was recycled back into the investment fund.* Importantly, the revenue benefits would be enough to ensure that all of the balance of the original reserves would be restored within twenty years. If the rate of return was a little less than 10% per annum for any reason (higher prudential borrowing costs or lower Feed-in Tariffs or Renewable Heat Incentive), the payback times would of course stretch; but the business case for the investment would remain predictable and robust and therefore manageable. This approach has been adopted in the past by Oxford City Council and Woking Borough Council and Bradford could do the same.<sup>78</sup>



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<sup>77</sup> <http://www.greenenergynet.com/blog/new-feed-tariff-guidance-announced-decc>.

<sup>78</sup> 'Bradford Council's Carbon Management', Link Member Report by Cllr Kevin Warnes, adopted by the Environment and Waste Management Improvement Committee, Bradford Council, 24 November 2009, pp.56-57 (available on the Bradford Council committee agenda, reports and minutes web pages for the 2009-2010 municipal year, listed as Appendix A to Document K): <http://councilminutes.bradford.gov.uk/wps/portal/cm>.



## **9. 20% scenarios for 2020.**

### **9.1 Overview**

The Council could, if it chose to do so, invest in sufficient new renewable energy capacity within the District over the next eight years to meet the equivalent of 20% or more of its energy needs (in addition to achieving the parallel 20% energy efficiency target also set by the Council in January 2010).

This 20% scenario assumes that the Council delivers the renewable energy projects that are already planned for implementation by 2015 and builds additional renewable capacity as well. To recap, the planned projects shown in Table 1 will provide approximately 10,000MWh in generating capacity at an estimated cost to the Council of just under £5.3 million. They will therefore take the Council more than halfway towards its 20% renewables target for 2020, primarily via biomass heating and energy from anaerobic digestion.

As mentioned earlier, Bradford Council will need to invest in enough renewable energy capacity to provide at least 18,000MWh annually in order to generate the equivalent of at least 20% of its electricity and gas and fuel energy requirements in 2020 from locally-sourced renewable energy. The Council's scheduled renewable energy projects will deliver approximately 10,000MWh of this renewable energy by 2015. Assuming that these projects come on stream, on time, and that they cost up to £6 million (rounding their cost upwards for simplicity), the Council will need to find an additional 8,000MWh of renewable energy to meet its 2020 renewables target.

There are a wide range of renewable energy opportunities available for Bradford Council to exploit. Biomass boilers offer a relatively quick means of reducing our dependence on gas for heating (though there is obviously a limit to the amount of biomass fuel that could be provided by local sources and this energy source will presumably become more expensive as demand rises). The Council has already begun to exploit this technology. Onshore wind is currently the most cost effective way of generating renewable energy in the form of electricity. The Council also has the option of gradually replacing its fleet of petrol and diesel powered vehicles and refuse with electric and biogas powered vehicles, with the latter perhaps linked to

anaerobic digestion (AD) facilities located within the District (perhaps on the site of the proposed Resource Recovery Facility planned for Bowling Back Lane). AD power plants with a capacity of 1MW are currently in development in the UK and would certainly be viable in Bradford given its semi-rural location.<sup>79</sup> AD is, indeed, one of the renewable energy options currently being considered by Council officers, as noted in Table 1.<sup>80</sup> Third sector organisations (Sustainable Saltaire, Bradford Environmental Action Trust and others) are also keen to explore opportunities for AD. Solar PV and solar thermal heating are, of course, also viable renewable energy technologies that are already being installed in Bradford and will be part of the Council's renewable energy mix in the coming decades.

The most cost-effective and technologically straightforward means of delivering this additional energy would be via onshore wind turbines. The European Wind Energy Association (EWEA) estimates that 40MW of installed onshore wind capacity will typically generate 87,600MWh of electricity annually.<sup>81</sup> Scaling these numbers down for Bradford's purposes indicates that a 2MW wind turbine could produce at least 4,000MWh of electricity in a typical year, depending on local wind conditions.

In fact, the local wind conditions are critical for estimating the power output of the turbine, the income it will generate and the rate of return on the initial investment. The 4,000MWh figure might underestimate the turbine's generating performance by about 25%.<sup>82</sup> On the other hand, it could also be an overestimate since everything depends on where the turbine is situated! Ideal wind turbine locations, such as Top Withens or Ilkley Moor, are clearly problematic as practical options for reasons that hardly need spelling out.<sup>83</sup> Suffice to say that the Council would struggle to secure

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<sup>79</sup> Brief details of examples of anaerobic digestion power projects can be found on the Community Renewable Energy website: [http://www.corecoop.net/index.php?option=com\\_content&task=view&id=39&Itemid=35](http://www.corecoop.net/index.php?option=com_content&task=view&id=39&Itemid=35).

<sup>80</sup> 'Action for climate change and environment performance, Bradford Council, Report of the Strategic Director of Regeneration and Culture to the meeting of Environment and Waste Management Overview and Scrutiny Committee to be held on 24 July 2012', Report D, Appendix, p.4: [http://councilminutes.bradford.gov.uk/wps/portal/!ut/p/c5/dYzBCoJAFEW\\_xS94z3G0aTmZOUUKWprNZpAQ0VIHEku\\_PkHa1bnLyzkgYV6bD1WZ91XX5g\\_IQDoKGeXkQljNkRHT80XKcAEukCFVp5rpYOyz4-QO53qKxmB7G591tOH3cFLpW8RjWjUtUi8yjNmRv6q2hd\\_q8v-BI4Siawg4glwpFylBFm8ci7ql-yBeJ-kuQfRN0M2gxas0PpAfk0!dl3/d3/L0IDU0IKSkthWWtLQ2xFSkvb0dvZ0FFSVFoakJLRVFBQUFFWkNnR1E0S1FwY0ZxQ0FLVUEhLzRDMWI5V19OcnhRREVTWkiKUKNJa2ZnIS83X0MwNDlwOFJCNjM0QzAwSU1SOVWVRIUwMEczLzlwNzlyOTQ0NzQ1My9kb2MvOTA1Mw!!/#7\\_C04208RB634C00IMR9UVFU00G3](http://councilminutes.bradford.gov.uk/wps/portal/!ut/p/c5/dYzBCoJAFEW_xS94z3G0aTmZOUUKWprNZpAQ0VIHEku_PkHa1bnLyzkgYV6bD1WZ91XX5g_IQDoKGeXkQljNkRHT80XKcAEukCFVp5rpYOyz4-QO53qKxmB7G591tOH3cFLpW8RjWjUtUi8yjNmRv6q2hd_q8v-BI4Siawg4glwpFylBFm8ci7ql-yBeJ-kuQfRN0M2gxas0PpAfk0!dl3/d3/L0IDU0IKSkthWWtLQ2xFSkvb0dvZ0FFSVFoakJLRVFBQUFFWkNnR1E0S1FwY0ZxQ0FLVUEhLzRDMWI5V19OcnhRREVTWkiKUKNJa2ZnIS83X0MwNDlwOFJCNjM0QzAwSU1SOVWVRIUwMEczLzlwNzlyOTQ0NzQ1My9kb2MvOTA1Mw!!/#7_C04208RB634C00IMR9UVFU00G3).

<sup>81</sup> EWEA Electricity Cost Calculator: <http://www.ewea.org/index.php?id=1884>.

<sup>82</sup> According to Renewable UK, formerly the British Wind Energy Association, a typical UK onshore 2MW wind turbine will typically produce 5.3GWh of electricity per year: <http://www.bwea.com/edu/calcs.html>.

<sup>83</sup> See footnote 186 for more details of the problems of finding ideal wind energy locations!

the planning consent necessary to exploit the magnificent wind resources in these areas, even if it were willing to embark on that politically hazardous path in the first place. These are, perhaps, the kind of renewable energy resources that will only be pressed into service when our energy crisis becomes much more severe in its immediate impacts on the everyday lives of local people (in other words, when the lights start to flicker). In the meantime, the Council may have to settle for sites that are less than ideal if it wishes to exploit the potential for wind energy in our District.

Taking these uncertainties into account, it is prudent to assume that Bradford Council would need to invest in three of these 2MW turbines in order to comfortably generate at least 8,000MWh of electricity per year. According to the EWEA, each of these turbines would cost at least £2m to bring on stream.<sup>84</sup> The total capital cost of three 2MW turbines would therefore be at least £6m (probably more, as noted below). If all three turbines were in the same place, they would probably occupy 60 hectares of land at most, nearly all of which could continue to be used for agricultural purposes (assuming that this was its prior use).<sup>85</sup> Having said that, it is worth bearing in mind that the recently-approved Ovenden Moor Windfarm 'Repower' planning application of August 2012 from Yorkshire Wind Power Ltd, which will replace the existing 23 turbines (capacity 9.2MW) with 9 much larger ones (capacity 22.5MW, generating 49GWh per year), will accommodate these new turbines in a reduced area of less than 32 hectares.<sup>86</sup> This suggests that it might just be possible to squeeze three turbines into an area of around 10 hectares, although of course the site would need to be at least 500 metres away from any nearby homes and comply with other restrictions on location.

Alternatively, of course, the turbines could be located individually in different locations in order to avoid the need to find a single suitable site. If the turbines were

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<sup>84</sup> <http://www.ewea.org/index.php?id=1884>. See also p.9 of the EWEA's 2009 report entitled 'The Economics of Wind Energy', edited by Soren Krone: [http://www.ewea.org/fileadmin/ewea\\_documents/documents/publications/reports/Economics\\_of\\_Wind\\_Main\\_Report\\_FINAL-Ir.pdf](http://www.ewea.org/fileadmin/ewea_documents/documents/publications/reports/Economics_of_Wind_Main_Report_FINAL-Ir.pdf).

<sup>85</sup> The Irish Wind Energy Association states that "there are different spacing requirements for different types of turbines, so the amount of space required by a wind farm depends on the number and type of turbine being deployed. A typical wind farm of 4-5 V90 3MW turbines might extend over an area of 1 square kilometre, but only 1% of the land area would be used to house the turbines, electrical infrastructure and access roads; the remainder can be used for other purposes, such as farming or as natural habitat": <http://www.iwea.com/index.cfm/page/technicalfaqs?#q33>.

<sup>86</sup> 'Ovenden Moor Wind Farm, Proposed Repower, Planning Statement', Yorkshire Wind Power Ltd, August 2012, pages 3 and 69: [http://www.eon-uk.com/downloads/Planning\\_Statement\(2\).pdf](http://www.eon-uk.com/downloads/Planning_Statement(2).pdf).

dispersed, the unit cost per turbine could probably increase by several hundred thousand pounds (grid connections, access roads etc).<sup>87</sup> This would therefore increase their overall cost from £6 million to perhaps £7-8 million or more. It is worth recalling, though, that there may well be a reasonable range of suitable sites bearing in mind the conclusions of the reports cited earlier: the AECOM report (perhaps optimistically) estimated that Bradford District should be able to utilise 70MW of wind energy capacity by 2025; and the RS report set an estimated target of 15MW of wind energy capacity by 2021. And there are presumably a number of possible sites that already have excellent grid connections and access roads, such as at the top of the M606 and on Ovenden Moor.

In all, therefore, the combination of the Council's planned renewable energy projects plus three new 2MW wind turbines would probably cost in the region of £12-14 million between now and 2020 (£6 million for the Council's planned renewable energy projects, plus £6-8 million for these new wind turbines). This would require an average annual investment over the next eight years approaching £2 million. This capital investment is significant; but, to repeat, each project would pay for itself within about ten years and, together, these investments would deliver substantial income streams for the Council for several decades to come.

In passing, it is worth highlighting that the Ovenden 'Repower' scheme mentioned earlier shows that Bradford Council could generate virtually double its total annual electricity needs from a wind energy project of this size if a suitable location could be found (either within the District or elsewhere). The capital cost would be in the region of £20-25 million.<sup>88</sup> Now that the Repower scheme has been approved, the nine new turbines will generate just over 49GWh of electricity annually, far in excess of Bradford Council's anticipated total annual electricity consumption by 2020 of around 25GWh (excluding schools). In fact, a wind energy project of this scale by itself would probably provide the equivalent of 70% of Bradford Council's overall energy requirements by 2020, easily meeting our decarbonisation and renewable energy

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<sup>87</sup> Information provided by the Environment and Climate Change Unit for this report, September 2012.

<sup>88</sup> The actual cost of the Repower scheme has not been revealed, so this 'guestimate' is based on the EWEA cost estimate mentioned above (approximately £1000 per KW of capacity).

targets for 2020 in one giant stride.<sup>89</sup> Not only would a project of this scale drastically reduce the Council's electricity bills, it would generate a considerable income from the renewable energy exported to the grid (approximately £3.75 million annually for 20+ years).<sup>90</sup> The sheer potential of this kind of scheme surely provides an persuasive case for detailed consideration, wherever it would be located (if suitable sites within the District cannot be found, the Council could consider more feasible locations elsewhere in partnership with other local authorities, including offshore, as the 2010 motion allowed for investment in projects outside the District to enable the Council to meet its 2020 renewable energy target).

Other renewable technologies also offer viable opportunities to drive down the Council's reliance on imported, high carbon electricity. Solar PV is relatively costly to invest in per KW compared to onshore wind, perhaps even twice as expensive; but the payback periods are perfectly manageable thanks to the Feed-in Tariffs regime. PV is also far easier to install, far more suitable for urban settings, infinitely adaptable to fit different building designs and settings and offers absolutely minimal maintenance costs. The Council has already begun to develop solar PV arrays – as already mentioned, the new 50KW solar PV array on the roof of St James Wholesale Market cost £112,000 to install and will pay for itself in 10-12 years.<sup>91</sup> Similar schemes could easily be rolled out across the District, bearing in mind that the Council's estate includes approximately 600 separate buildings, many of which would provide suitable platforms for solar PV.

Although the Council consumes nearly twice as much gas as electricity in terms of MWh (55,000MWh vs 29,000MWh), the carbon emissions associated with the Council's use of each of these energy sources are actually more or less equal given that the lifecycle CO2 emissions associated with gas are approximately half those of electricity.<sup>92</sup> This suggests, in turn, that a drive to generate as much of its own

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<sup>89</sup> 'Ovenden Moor Wind Farm, Proposed Repower, Planning Statement', Yorkshire Wind Power Ltd, August 2012, p.69: [http://www.eon-uk.com/downloads/Planning\\_Statement\(2\).pdf](http://www.eon-uk.com/downloads/Planning_Statement(2).pdf).

<sup>90</sup> The 6MW Avonmouth wind farm proposed by Bristol City Council is expected to generate an annual income of £1 million; the 22.5MW Repower scheme will therefore presumably generate an income 3.75 times greater. For details of the Avonmouth scheme, visit [http://www.local.gov.uk/web/guest/home/-/journal\\_content/56/10171/3511241/ARTICLE-TEMPLATE](http://www.local.gov.uk/web/guest/home/-/journal_content/56/10171/3511241/ARTICLE-TEMPLATE).

<sup>91</sup> [http://www.bradford.gov.uk/bmhc/government\\_politics\\_and\\_public\\_administration/news/market\\_solar\\_panels](http://www.bradford.gov.uk/bmhc/government_politics_and_public_administration/news/market_solar_panels).

<sup>92</sup> According to the Biomass Energy Centre, the lifetime CO2 emissions (including production) of using one MWh of natural gas are 270kg, compared to 530kg for UK grid electricity:

electricity locally and renewably via wind turbines and solar PV will deliver the quickest and most cost effective carbon reductions for the Council.

Hydropower is another option. Although it is roughly seven times more expensive than wind per KW to install, the payback periods remain as viable as other renewable technologies due to the Feed-in Tariffs regime.<sup>93</sup> The Council has recently proposed an 83KW hydro scheme in Saltaire that will generate approximately 371MWh of electricity per year if approved. The scheme will require approximately £1.1 million in capital investment, with a payback period of just over a decade, and is expected to generate financial returns of £2.5 million+ over the first 20 years of its operation.<sup>94</sup> Its actual operating span, of course, would be considerably longer than this.<sup>95</sup>

As suggested earlier, the use of biomass boilers for heating is another promising option for Bradford Council that would reduce its use of natural gas.<sup>96</sup> The Council has already installed woodchip biomass boilers in Ilkley Town Hall and City Hall in

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[http://www.biomassenergycentre.org.uk/portal/page?\\_pageid=75,163182&\\_dad=portal&\\_schema=PORTAL](http://www.biomassenergycentre.org.uk/portal/page?_pageid=75,163182&_dad=portal&_schema=PORTAL). A report published by the World Energy Council in 2004 also provides useful comparative data about the life cycle carbon footprints of different source of energy – see ‘Comparison of Energy Systems using Lifecycle Assessment’, World Energy Council, July 2004, p.4: <http://www.worldenergy.org/documents/lca2.pdf>.

<sup>93</sup> Bradford District could, potentially, develop 4.3MW of hydropower by 2021, generating 14GWh annually. There are reportedly “many sites which have the potential for small scale hydro power generation in the [Leeds City] sub-region, particularly in Bradford, Calderdale and Kirklees” (‘Renewable and Low Carbon Energy Capacity Study for Yorkshire and Humber, Part B, Opportunities and Constraints Mapping, Draft Report’, April 2010, AECOM, for Local Government Yorkshire and Humber, p.61: <http://www.lgyh.gov.uk/dnlds/YH%20Part%20B%20report.pdf>). See also ‘Low Carbon and Renewable Energy Capacity in Yorkshire and Humber: Final Report’, AECOM, for Local Government Yorkshire and Humber, April 2011, pages 35, 48 and 148: <http://www.yourclimate.org/pages/low-carbon-renewable-energy-capacity-yh>.

<sup>94</sup> ‘Saltaire Hydropower Feasibility Study, Final Report’, JBA Consulting/Bradford Council, June 2012: [http://www.bradford.gov.uk/NR/rdonlyres/C2D84C0C-3D48-49AE-BED3-477D57226990/0/2011s5535FinalReport\\_ISSUED.pdf](http://www.bradford.gov.uk/NR/rdonlyres/C2D84C0C-3D48-49AE-BED3-477D57226990/0/2011s5535FinalReport_ISSUED.pdf).

<sup>95</sup> The expected design life of a 90KW scheme in Devon installed two decades ago was estimate to be 30 years, according to the British Hydropower Association, so it is reasonable to assume that the design life of the Saltaire scheme will easily exceed the same timeframe given the likelihood of improvements in materials and technology design over the past two decades: <http://www.british-hydro.org/mini-hydro/infopaged6cd.html?infoid=392>.

<sup>96</sup> Bradford University’s recent experience with biomass boiler technology provides an excellent illustration of the attractiveness of this renewable energy heating option, especially bearing in mind that the University’s investment in this technology pre-dated the current Renewable Heat Incentive scheme. The university installed a 500KW biomass boiler in 2008. According to the University, the biomass boiler cost £327,000, of which £147,000 was paid for by a grant from DEFRA. The University originally estimated that the boiler would save approximately £6,000 per annum at 2008 gas prices, with a payback period on the University’s investment of around 15 years, and anticipated that this timescale would shorten as the price of gas continued to rise and biomass prices continued to fall by 2-3% as the biofuels market grew. The annual carbon savings were expected to be 500 tonnes. <http://www.bradford.ac.uk/academic-development/media/academicdevelopment/documents/esd/biomass-boiler.pdf>.

Bradford - the latter provides almost 20% of the building's heating requirements.<sup>97</sup>

This technology has many obvious advantages as a means of reducing our dependence on natural gas, driving down our carbon emissions and generating considerable income via the government's Renewable Heat Incentive scheme. Biomass boilers are a reliable, flexible technology, available today, and can be tailored to fit the heating requirements of the wide range of buildings in the council estate. They can be easily installed to replace or run alongside existing heating systems, are relatively straightforward from a planning perspective and do not provoke public unease in the way that wind turbines sometimes do. They use renewable fuel sources (woodchips, wood pellets) that are either available locally in our District or can be sourced from relatively nearby in our wider region. As noted above, the Council is already planning to install 1.6MW of new biomass boiler capacity by 2014, and this installation programme could conceivably be rolled out in an expanded form during the 2014-2020 period depending on the availability of suitable fuels.

Solar thermal heating and heat pump technology are other obvious low carbon heating routes to explore. By way of illustration, the solar thermal panels installed by Sutton Council on one of its social housing blocks in 2005 supply 55 households with half of their hot water and yield the equivalent of 160MWh of energy each year.<sup>98</sup> Technology of this kind would be suitable for the hot water needs of many of the council's buildings, and would also be an obvious investment opportunity to explore in collaboration with social housing providers like Incommunities.

As mentioned above, the Council's vehicle fleets are likely to be consuming approximately 20,000MWh of fuel energy per annum by 2020. These vehicles could be progressively replaced with biogas and electric powered vehicles as the existing petrol and diesel powered vehicles reach the end of their operational lifetimes and as leasing contracts come up for renewal. As I outlined in my 'carbon management' link member report in 2009, biomethane vehicles are widely used in France and Germany and deliver huge environmental and carbon reduction benefits. Their fuel

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<sup>97</sup> According to the Display Energy Certificate for City Hall, Bradford, dated October 2010, renewable energy provided 19.1% of the building's heating requirements: <http://www.bradford.gov.uk/NR/rdonlyres/0E3B2142-8626-4046-9053-CEFBC0A7CB3E/0/CityHall.pdf>.

<sup>98</sup> <http://www.solaruk.com/case-study/killickhouse.asp>.

costs are apparently 40% cheaper than diesel and 55% cheaper than petrol. The downside is that their capital costs are much higher, although this extra initial £27,000 cost would be completely offset by their reduced running costs provided that the vehicles operate for at least five years. The Council's refuse collection vehicles use an average of 14,921 litres of diesel fuel each year at a cost of £17,327. This means that the annual 40% saving in fuel costs would be £6,931 per vehicle and therefore total £34,655 over a five year period.<sup>99</sup> In addition, of course, these vehicles would presumably be subject to very low or zero vehicle tax.

The Council could also consider using more electric and hybrid vehicles and creating its own electric vehicle (EV) charging points. This could be part of a process of investing in creating its own small pool of passenger vehicles as some other councils like Edinburgh and large corporate organisations like the Environment Agency have done rather than continuing to lease vehicles. This approach would have the added merit of encouraging council staff who drive to work over relatively short commuter distances to invest in their own electric vehicles as well, particularly if the Council implemented the advice that it offers to other major local employers and developed its own Sustainable Travel Plan (this has not yet been done).<sup>100</sup>

## 9.2 Pros and Cons

Overall, there are a range of advantages to this 'maximal' renewables approach (investing in new renewable energy capacity within Bradford District). The Council would substantially reduce its reliance for its energy supplies on the big energy companies and its vulnerability to ongoing increases in their prices. The Council would gain significant, guaranteed revenue benefits linked to its ownership of

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<sup>99</sup> For a brief overview of this, see 'Bradford Council's Carbon Management', Link Member Report by Cllr Kevin Warnes, adopted by the Environment and Waste Management Improvement Committee, Bradford Council, 24 November 2009, p.67 (available on the Bradford Council committee agenda, reports and minutes web pages for the 2009-2010 municipal year, listed as Appendix A to Document K): <http://councilminutes.bradford.gov.uk/wps/portal/cm>. The information about the fuel use and running cost of the vehicles relates to the 2011-2012 financial year and was obtained from council officers in August 2012. See also Biogas as a Road Transport Fuel: National Society for Clean Air and Environmental Protection, June 2006, p.1: [www.environmental-protection.org.uk/assets/library/documents/biogas\\_as\\_transport\\_fuel\\_june06.pdf](http://www.environmental-protection.org.uk/assets/library/documents/biogas_as_transport_fuel_june06.pdf). An excellent review of the advantages of biomethane and its use in vehicles worldwide can be downloaded from the International Association for Natural Gas Vehicles: <http://www.iangv.org/tools-and-resources/reports-and-papers-2/reports-biomethane/>.

<sup>100</sup> For a more detailed discussion of the Council's fleet arrangements, see Section 3.5 of my link member carbon management report of 2009 - 'Bradford Council's Carbon Management', Link Member Report by Cllr Kevin Warnes, adopted by the Environment and Waste Management Improvement Committee, Bradford Council, 24 November 2009, pp.60-68 (available on the Bradford Council committee agenda, reports and minutes web pages for the 2009-2010 municipal year, listed as Appendix A to Document K): <http://councilminutes.bradford.gov.uk/wps/portal/cm>.



renewable energy generating capacity in the form of (a) the Feed-in Tariffs and Renewable Heat Incentive payments that are available and (b) the savings in its own energy bills that would result from having to import less electricity and gas from the grid. This is particularly attractive bearing in mind that rock-bottom interest rates combined with price inflation are currently depleting the real value of the Council's financial reserves, capital that could instead be used to fund investments in renewable energy that would subsequently deliver multi-million pound revenue streams for the Council for decades to come. The Council would be able to seize the opportunity to exercise a community leadership role in promoting, investing in and using renewable energy, thereby enhancing the capacity of the District as a whole to make the transition to a post-carbon society. This leadership role would be massively enhanced if the Council could develop partnerships with other organisations to deliver renewable energy projects and facilitate community ownership of renewable energy resources as well. The Council and its local partners would then begin to reverse the tide of taxpayer cash that currently leaves the District's economy and benefits the major energy companies (an estimated £689 million in 2011, as mentioned earlier, projected to rise to £947 million by 2030). This would improve our local economic resilience and create jobs for our District.

The main disadvantages of this approach are three-fold. First, the Council would have to find substantial up front capital investment in new renewable energy generating capacity. This would total at least £12-14 million if wind energy alone were utilised in addition to the Council's planned renewable energy projects; and up to £20 million or more if a wider range of more costly renewable energy technologies (solar PV, hydro, biomass heat etc) were developed in addition to those already planned. This substantial capital investment would be needed at a time of severely squeezed budgets and numerous other demands on its financial reserves. This, in turn, would present severe political challenges in so far as the Council would need to be able to justify these investments in relation to other investment opportunities. Second, the Council would need to manage a fairly complex process of strategising and action planning to develop these new renewable energy projects and manage them thereafter. As mentioned, some or even most of this process would ideally involve setting up cooperative joint investment ventures and working collaboratively with community groups, businesses and other local organisations for the first time.

This would be challenging, especially bearing in mind that the Council already faces several years of severe budget constraints and organisational upheaval and has other corporate priorities that it must also address. Third, the Council (and its partners) would almost certainly need to design, install and operate renewable energy projects that would excite public controversy, including perhaps the large wind turbines that are, nonetheless, the most cost effective means of reducing our dependence on fossil fuel electricity generation.



## 10. Actions and Key Recommendations

Bearing the '20% scenarios' just outlined in mind, there are a range of specific actions which Bradford Council could consider in order to decarbonise its own operations and help the District as a whole to begin the transition to a post-oil, low carbon society. The Council has already begun this transformative process, to be fair, but there is a long way to go and much more that we can do to deal with the environmental and economic risks posed by climate change and peak oil.

### 10.1 Strategy and Action Planning to 2020

Bradford Council has developed an outline 'Framework for Action' focusing on carbon reduction across the District as a whole by 2020 ('Our District, Our Climate, Our Responsibility').<sup>101</sup> This is a valuable contribution that realistically acknowledges it is a "work in progress" and a "starting point". Section 2.4 ('What does our CO2 reduction path to 2020 look like?') sketches how Bradford's greenhouse gas emissions need to steadily reduce sector by sector, and the action tables in Section 4.2 ('A Call to Action') provide useful information about the sustainable energy initiatives that Bradford Council aims to have completed by the end of 2012.

It is now vital that Bradford Council quickly develops this Framework for Action into a more in-depth strategic plan that focuses, first, on its own operations in a way that incorporates fully costed and detailed action planning with annual targets, and charts pathways to guide the Council's multi-million pound investment decisions over the next eight years (as envisaged in Aim 1, Action 5 of the Framework).<sup>102</sup> The Framework also needs to be further developed in terms of the support that can be given by the Council to the growing network of community energy groups across the District (this is discussed in more detail below). This action planning could, of course, be undertaken in parallel with the proposed District-wide 'Sustainable Energy Group' that is also discussed below. The hugely impressive 65 actions included in Bristol

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<sup>101</sup> 'Our District, Our Climate, Our Responsibility', Bradford Council, 2012: <http://www.bradford.gov.uk/NR/rdonlyres/398FF4E4-A46F-4FFC-90CB-F19936E81594/0/OurDistrictOurClimateOurResponsibility.pdf>.

<sup>102</sup> Aim 1, Action 5 states that during 2012 Bradford Council will "undertake [carbon] modelling and use this intelligence to inform detailed programmes of action". 'Our District, Our Climate, Our Responsibility', Bradford Council, 2012, p.19: <http://www.bradford.gov.uk/NR/rdonlyres/398FF4E4-A46F-4FFC-90CB-F19936E81594/0/OurDistrictOurClimateOurResponsibility.pdf>.

Council's 'Climate Change and Energy Security Framework' (adopted in March 2012 and covering the next three years alone) give a comparative sense of the scale of how much more councils can do to decarbonise their activities and change the way that energy is used in their wider localities (some of Bristol's actions are outlined later in this report).<sup>103</sup>

## **10.2 Capacity-Building**

Bradford Council's Environment and Climate Change Unit is a new and relatively tiny part of our overall corporate structure; yet its role is vital for the Council as it seeks to decarbonise its operations and, by extension, vital as well for Bradford District's successful transition to a low carbon, post-oil economy. It has been roughly three years since the unit's start-up staffing needs were set in place and, in the meantime, the Council has undergone a radical organisational restructuring made necessary by the need to achieve unprecedented budget cuts. It may therefore be sensible for the Council to review the capacity of the unit to develop and manage the numerous energy efficiency and renewable energy projects that are imminent – especially as these will often involve multi-million pound budgets and a need to work pro-actively and closely with current and potential partner organisations, including the many community energy groups that will hopefully be a key feature of Bradford's post-carbon future. This could be achieved in conjunction with a recognition by the Council (a) that one of its core priorities is to secure District energy resilience and adapt to the challenges of climate change and (b) that the generation of 'Made in Bradford' renewable energy becomes a Council priority.

## **10.3 A 'Sustainable Energy Fund'**

The Environment and Climate Change Unit has a base staffing budget of approximately £450,000. However, it has no secure year-on-year capital funds available for investment. The investment plans of the unit are therefore reliant on the Council's annual budget discussions and ad hoc capital investment decisions. If allowed to continue, this funding situation will inhibit the ability of the Council to plan for and initiate the sustained series of energy saving and renewable energy projects

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<sup>103</sup> 'Climate Change and Energy Security Framework 2012-2015', Bristol City Council, Cabinet paper, 29 March 2012, pp.154-168: [https://www.bristol.gov.uk/committee/2012/ua/ua000/0329\\_8.pdf](https://www.bristol.gov.uk/committee/2012/ua/ua000/0329_8.pdf).

that are needed to enable the Council to meet its energy targets by 2020. It is absolutely critical that this financing shortfall is addressed in a way that replaces short-term financing with a sustainable, long-term investment perspective. Within this context, of course, funding would remain contingent on presenting a robust a business case for every project (the benefit being that officers would be able to plan for projects with greater certainty than they can at present thanks to an understanding that the financing will be released once the business case has been found to be watertight).

Oxford and Bristol City Councils, and Woking Borough Council, have solved this problem in recent years by establishing ring-fenced investment funds that provide a source of continuing investment in low carbon and renewable energy projects. Oxford's fund was set up in 2008 using council and SALIX finance, is owned and managed by the Council and topped up each year from the energy savings achieved by the fund's investments.<sup>104</sup> Bristol's current action plan includes an identical "revolving fund" of up to £500,000.<sup>105</sup> Woking set up a similar fund back in 1990 when they provided £250,000 of ring-fenced funds for energy efficiency work on Council buildings and ploughed the resulting savings back into new projects. Their investments yielded efficiencies worth £4 million over the following decade, most of which was reinvested in new initiatives. When Woking went further in 1999 and set up an energy and environmental services company called Thamesway Limited, the Council was able to engage in additional joint energy projects in and beyond the Borough that generated profits that are reinvested in fresh low carbon projects (including the Combined Heat and Power Station in Woking town centre).<sup>106</sup>

Bradford Council could launch its own ring-fenced 'Sustainable Energy Fund' to provide a source of sustained investment in local renewable energy projects, especially as the Environment and Climate Change Unit is already responsible for

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<sup>104</sup> 'Oxford City Council Carbon Management Programme Strategy and Implementation Plan', 2008, p.6:  
<http://www.oxford.gov.uk/Direct/77713GettingOurHouseinOrderv410.pdf>.

<sup>105</sup> 'Bristol Energy and Carbon Initiatives', Bristol City Council, November 2010, p.6:  
[http://www.bristol.gov.uk/sites/default/files/documents/environment/environmental\\_policy\\_and\\_performance/energy\\_management/Bristol%20Energy%20and%20Carbon%20Initiatives%20booklet.pdf](http://www.bristol.gov.uk/sites/default/files/documents/environment/environmental_policy_and_performance/energy_management/Bristol%20Energy%20and%20Carbon%20Initiatives%20booklet.pdf). See also Climate Change and Energy Security Framework 2012-2015, Bristol City Council, Cabinet paper, 29 March 2012, p.155:  
[https://www.bristol.gov.uk/committee/2012/ua/ua000/0329\\_8.pdf](https://www.bristol.gov.uk/committee/2012/ua/ua000/0329_8.pdf).

<sup>106</sup> Councillor, Summer 2006, pp.16-17. Woking Borough Council's website provides further details:  
[www.woking.gov.uk/environment/climate/Greeninitiatives/sustainablewoking](http://www.woking.gov.uk/environment/climate/Greeninitiatives/sustainablewoking).

managing the Council's energy contracts and payments. In other words, it would be administratively easy for the unit to ensure that the energy savings and income from the projects it initiates are fed back into the Fund to (a) pay back their original capital investment costs and (b) sustain ongoing renewable energy investments. It might also be possible for this fund to be made available to community energy groups provided that they are able to present robust business plans as a basis for shared investment.

## **10.4 Financing renewable energy**

At present, Bradford Council's accounting rules inhibit investment in renewable energy projects with payback times longer than 5-7 years. Given the longer investment timeframes often associated with new renewable energy capacity, typically around a decade, it would be sensible for the Council to relax its resistance to longer-term financing in order to facilitate investment in a wider range of renewable energy projects, cut its carbon emissions and deal with the growing risks associated with its underlying energy insecurity.

In addition, Bradford Council could review the level of resourcing that it has so far been prepared to commit to dealing with its energy insecurity and limited sustainable energy procurement. The amount of investment allocated to energy and carbon management in recent Council budgets has fluctuated sharply in recent years. This arguably reinforces the chronic short-termism referred to in the previous section, inhibiting Bradford Council's corporate ability to plan as far ahead or as extensively as is arguably needed to facilitate a transformational change in its own energy use and that of the wider district.

In contrast, Norfolk County Council's Carbon and Energy Reduction Fund, covering the 2010-2013 period, has guaranteed funding of £9.38 million in capital investment.<sup>107</sup> This impressive fund, moreover, is overshadowed by the vaulting financial ambition that underpins Bristol City Council's climate change and energy security strategy action planning (though it is important to stress that not all of Bristol's extensive list of investments will be financed by council taxpayers). Bristol's headline energy efficiency and renewable energy investment commitments for 2012-

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<sup>107</sup> <http://www.schools.norfolk.gov.uk/view/NCC103987>.

2015 (please note: a timeframe of just four years) include: £60 million for retrofitting housing stock with energy efficiency measures; £37 million to “plan and deliver advanced energy efficiency and renewable energy measures for Council buildings”; £24 million for “planning and delivering a micro district heating programme”; £10.4 million to “pursue Green Deal opportunities for energy efficiency of social and private housing”; £9.4 million to construct two large wind turbines at Avonmouth; £4 million to install ten biomass boilers in Council buildings; and £1 million to install 35 solar PV systems in schools.<sup>108</sup>

### **Key Recommendation 1: Council Investment in Renewable Energy**

**That Bradford Council strengthens its financing arrangements governing investment in renewable energy in three ways. First, by establishing a ring-fenced ‘Sustainable Energy Fund’, managed by the Environment and Climate Change Unit, to provide a source of sustained investment in renewable energy projects in Bradford; and ensuring that this fund operates on the basis that all of the revenue accruing from these projects is recycled back into the fund to (a) pay back the original capital costs and (b) sustain ongoing renewable energy investments. Second, by relaxing restrictions on the pay-back periods for energy-related capital projects so as to facilitate investment in a wider range of renewable energy projects. Third, by establishing a more robust medium-term financial framework that delivers sustained year-on-year investment in renewable energy, linked to the ring-fenced ‘Sustainable Energy Fund’.**

## **10.5 Buying ‘Green Electricity’**

Bradford Council will need to renew its electricity supply contracts over the next three years. It could therefore seek to use its procurement ‘spending power’ to maximise its ‘green energy’ credentials regardless of how much new renewable energy capacity is created in the District over the next eight years. The Council could seek to negotiate supply contracts with the companies that are doing most to invest in and create new renewable energy capacity in the UK - Ecotricity is an example that

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<sup>108</sup> [http://www.bristol.gov.uk/sites/default/files/documents/environment/climate\\_change/CC%26ESF%202012-15%20FINAL.pdf](http://www.bristol.gov.uk/sites/default/files/documents/environment/climate_change/CC%26ESF%202012-15%20FINAL.pdf).

springs to mind. Any opportunities to do so should be reviewed as a matter of urgency including, of course, a rigorous and transparent analysis of the potential revenue costs of doing so for the Council. Indeed, work in this area has already begun in conjunction with Leeds City Region partners and with support from the Department for Energy and Climate Change.<sup>109</sup>

A robust and affordable business case would be required for the Council to switch its electricity provider. If procuring greener electricity could be achieved within the financial constraints facing Bradford Council, it is fair to say that this approach would enable the Council to actively support those companies that have the best record for investing in the additional renewable energy infrastructure that the UK will need in order to decarbonise its economy and society in the decades ahead. It would also demonstrate corporate leadership in this area of policy in a dramatic (and perhaps ethical) way that would be noted by other organisations across the District. It would, similarly, provide a valuable platform for the Council to campaign pro-actively to persuade Bradford's 200,000 residential households to switch their spending power to greener energy providers. It is interesting that Section 4.1 ('What can I do today?') of Bradford's Framework for Action encourages local residents to "buy green products" in relation to exploring renewable energy, but does not specifically suggest that residents choose green electricity tariffs or provide exemplar information about opportunities to do so in the current consumer energy market.<sup>110</sup> This is an area that could conceivably be quickly and easily addressed.

## **10.6 Council vehicle fuel use**

There are three areas where Bradford Council could quickly take action well ahead of 2020 to reduce its corporate use (and use by its staff) of fossil fuels for transport (bearing in mind, as mentioned earlier, that the Council's fuel use currently accounts for 25,000MWh of its annual energy requirements and is responsible for 6,500 tCO<sub>2</sub>e of atmospheric pollution).

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<sup>109</sup> Information provided by the Environment and Climate Change Unit, November 2012.

<sup>110</sup> 'Our District, Our Climate, Our Responsibility', Bradford Council, 2012, p.17:

<http://www.bradford.gov.uk/NR/rdonlyres/398FF4E4-A46F-4FFC-90CB-F19936E81594/0/OurDistrictOurClimateOurResponsibility.pdf>. It is worth noting, in passing, that Portland City Council in Oregon, USA, has stated that it is aiming by the end of this year (2012) to be purchasing or generating all of its electricity from renewable sources, with at least 15% from on-site or local renewable energy sources such as solar or biogas. 'City of Portland and Multnomah County Climate Action Plan 2009', p.58: <http://www.portlandoregon.gov/bps/article/268612>.



First, the Council could review its passenger transport fleet arrangements to assess the potential for acquiring its own small pool of vehicles rather than leasing vehicles and thereby maximise control over the environmental aspects of its corporate travel arrangements. In most instances, the staff who travel on Council business apparently use their own vehicles.<sup>111</sup> Even so, a small vehicle pool would give the Council a little more control over its staff transport arrangements and ensure that more of the vehicles used by its staff for work purposes were either hybrid or electric vehicles (this is a strategy currently being pursued by Portland City Council in the US).<sup>112</sup> The Council would also benefit from the far lower vehicle tax levied on these low carbon vehicles. Interestingly, Fleet Transport Services are reportedly evaluating the whole life costs of hybrid vehicles as replacements for diesel vehicles and are in preliminary discussions with colleagues in Environmental Health regarding low emission fuel source options for the future.<sup>113</sup> This process could be accelerated, in accordance with the Council's developing DEFRA-funded 'Low Emission Strategy', and broadened to include hybrid vehicles as a replacement for petrol vehicles. This would provide an early and comprehensive evaluation of the low emission fuel source options available to Bradford Council.

Second, the Council could develop a local network of EV charging points for its own vehicles and those used by its staff and, possibly, also for members of the public who might be willing to pay for this service. This could, in fact, be a positive and very visible element of the Council's efforts to engage with local communities across the District on carbon reduction, raising public awareness of the alternatives to fossil fuels. Fleet services is currently trialling electric vehicles, but the Council currently has no plans to create EV charging points (a Leeds City Region funding bid for these was rejected in 2011).<sup>114</sup> This ought to be reviewed, given that Aim 7 (Transport),

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<sup>111</sup> Information provided for this report by the Environment and Climate Change Unit, September 2012.

<sup>112</sup> 'City of Portland and Multnomah County Climate Action Plan 2009', p.58:

<http://www.portlandoregon.gov/bps/article/268612>.

<sup>113</sup> Information provided by officers for this report, September 2012.

<sup>114</sup> 'Action for climate change and environment performance, Bradford Council, Report of the Strategic Director of Regeneration and Culture to the meeting of Environment and Waste Management Overview and Scrutiny Committee to be held on 24 July 2012', Report D, Appendix, p.6:

[http://councilminutes.bradford.gov.uk/wps/portal/!ut/p/c5/dYzBCoJAFEW\\_xS94z3G0aTmZOUUKWprNZpAQ0VIHEku\\_PkHa1bnLyzkgYV6bD1WZ91XX5g\\_IQDoKGeXkQIjNkRHT80XKcAEukCFVp5rpYOyz4-QO53qKxmB7G591tOH3cFLpW8RjWjUtUi8yjNmRv6q2hd\\_q8v-BI4Siawg4glwpFyIBFm8ci7gl-yBeJ-kuQfRN0M2gxas0PpAfkno!dl3/d3/L0IDU0IKSkthWWtLQ2xFSkvb0dvZ0FFSVFoakJLRVFBQUFFWkNnr1E0S1FwY0ZxQ](http://councilminutes.bradford.gov.uk/wps/portal/!ut/p/c5/dYzBCoJAFEW_xS94z3G0aTmZOUUKWprNZpAQ0VIHEku_PkHa1bnLyzkgYV6bD1WZ91XX5g_IQDoKGeXkQIjNkRHT80XKcAEukCFVp5rpYOyz4-QO53qKxmB7G591tOH3cFLpW8RjWjUtUi8yjNmRv6q2hd_q8v-BI4Siawg4glwpFyIBFm8ci7gl-yBeJ-kuQfRN0M2gxas0PpAfkno!dl3/d3/L0IDU0IKSkthWWtLQ2xFSkvb0dvZ0FFSVFoakJLRVFBQUFFWkNnr1E0S1FwY0ZxQ)

Actions 9 and 10 of the 'Framework for Action' state that during 2012 the Council will "bring forward proposals for a pilot electric vehicles programme within the Council" and "develop proposals for putting in place "pathfinder" electric vehicle charging points within the District".<sup>115</sup> These actions might usefully be addressed, perhaps by working pro-actively with partner organisations and the District's retail motor trade, albeit bearing in mind that there is currently no government subsidy available for setting up EV charging points.<sup>116</sup>

Third, the Council could progressively replace its conventionally powered refuse collection vehicles with biogas fuelled vehicles (at no extra cost over a 4-5 year operating timeframe, as discussed earlier in this report). Some 'gas vehicle trials' are currently taking place, in relation to both Compressed Natural Gas and biogas.<sup>117</sup> However, the Council currently has not yet finalised plans for a long-term replacement programme. The Council needs to complete an early review of the feasibility of replacing its current refuse collection fleet with biogas vehicles, with a view to completing a phased replacement programme (biogas preferred) for these highly polluting vehicles by 2020.

## 10.7 Sustainable Council buildings

Bradford Council manages a large estate of 500-600 buildings, yet surprisingly there is no specific mention of the Council's estate among the actions linked to buildings in the Framework for Action.<sup>118</sup> The Council could, for example, commit to ensuring that any new Council buildings brought 'on stream' between now and 2020 are as close

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<sup>115</sup> 'Our District, Our Climate, Our Responsibility', Bradford Council, 2012, p.23:

<http://www.bradford.gov.uk/NR/rdonlyres/398FF4E4-A46F-4FFC-90CB-F19936E81594/0/OurDistrictOurClimateOurResponsibility.pdf>.

<sup>116</sup> Information provided for this report by the Environment and Climate Change Unit, September 2012.

<sup>117</sup> 'Action for climate change and environment performance, Bradford Council, Report of the Strategic Director of Regeneration and Culture to the meeting of Environment and Waste Management Overview and Scrutiny Committee to be held on 24 July 2012', Report D, Appendix, p.6:

[http://councilminutes.bradford.gov.uk/wps/portal!ut/p/c5/dYzBCoJAFEW\\_xS94z3G0aTmZOUUKWprNZpAQ0VIHEku\\_PkHa1bnLyzkgYV6bD1WZ91XX5g\\_IQDoKGeXkQlJNkrHT80XKcAEukCFVp5rpYOyz4-QO53qKxmB7G591tOH3cFLpW8RjWjUtUi8yjNmRv6g2hd\\_q8v-BI4Siawq4glwpFyIBFm8ci7ql-yBeJ-kuQfRN0M2gxasOPpAfk0!dl3/d3/L0IDU0IKSkthWWtLQ2xFSkvb0dvZ0FFSVFoakJLRVFBQUFFWkNnR1E0S1FwY0ZxQ0FLVUEhLzRDMWI5V19OcnhRREVTWkiKUKNJa2ZnIS83X0MwNDlwOFJCNjM0QzAwSU1SOVWVRIUwMEczLzlwNzlyOTQ0NzQ1My9kb2MvOTA1Mw!!/#7\\_C04208RB634C00IMR9UVFU00G3](http://councilminutes.bradford.gov.uk/wps/portal!ut/p/c5/dYzBCoJAFEW_xS94z3G0aTmZOUUKWprNZpAQ0VIHEku_PkHa1bnLyzkgYV6bD1WZ91XX5g_IQDoKGeXkQlJNkrHT80XKcAEukCFVp5rpYOyz4-QO53qKxmB7G591tOH3cFLpW8RjWjUtUi8yjNmRv6g2hd_q8v-BI4Siawq4glwpFyIBFm8ci7ql-yBeJ-kuQfRN0M2gxasOPpAfk0!dl3/d3/L0IDU0IKSkthWWtLQ2xFSkvb0dvZ0FFSVFoakJLRVFBQUFFWkNnR1E0S1FwY0ZxQ0FLVUEhLzRDMWI5V19OcnhRREVTWkiKUKNJa2ZnIS83X0MwNDlwOFJCNjM0QzAwSU1SOVWVRIUwMEczLzlwNzlyOTQ0NzQ1My9kb2MvOTA1Mw!!/#7_C04208RB634C00IMR9UVFU00G3).

<sup>118</sup> 'Our District, Our Climate, Our Responsibility', Bradford Council, 2012, p.22:

<http://www.bradford.gov.uk/NR/rdonlyres/398FF4E4-A46F-4FFC-90CB-F19936E81594/0/OurDistrictOurClimateOurResponsibility.pdf>.

as possible to 'zero carbon' or are perhaps even net generators of energy. This could include any affordable housing built by the Council. At present, the Council is only committed to ensuring that "new affordable housing developed by the Council is to at least Code 4 of the Code for Sustainable Homes Standard".<sup>119</sup> This means that these new homes will only be 44% more energy efficient than a home that is compliant with standard building regulations, well short of the zero carbon performance of a Code 6 home.<sup>120</sup> Code 6 should therefore be the minimum standard for all new affordable housing built by Bradford Council. These homes would be more expensive to construct, of course, but would subsequently be far cheaper to live in thanks to their minimal energy costs - they would therefore help to reduce fuel poverty in the District. Given the strong demand for housing that exists in the UK at present and is likely to persist for the foreseeable future, these sustainable homes would surely attract interest in the housing market – indeed, this has already happened in relation to the twelve zero carbon homes built by the Council in 2011 as part of the award-winning Pavilion Gardens social housing development in West Bowling.<sup>121</sup> More of these properties – perhaps built to a new low carbon recognisable 'Bradford Standard' - would provide a lasting, visible signal to Bradford's private construction firms and social housing providers that sustainable housing is both affordable and achievable in our District.

The Council could also commit to ensuring that its existing estate is progressively retrofitted as soon as possible to minimise energy use and maximise renewable energy generation. To that effect, a 'sustainability audit' of all council buildings could be carried out to identify opportunities for these kinds of improvements to be implemented by 2020 wherever possible. This could be one of the components of the scoping task identified as an Action in the Council's 'Framework for Action' (Aim 5, Action 4), which states that by the end of 2012 the Council will "scope opportunities to provide heat, power and alternative fuels for CBMDC operations and

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<sup>119</sup> 'Our District, Our Climate, Our Responsibility', Bradford Council, 2012, p.22:

<http://www.bradford.gov.uk/NR/rdoonlyres/398FF4E4-A46F-4FFC-90CB-F19936E81594/0/OurDistrictOurClimateOurResponsibility.pdf>.

<sup>120</sup> <http://www.energysavingtrust.org.uk/Professional-resources/Housing-professionals/New-housing/The-Code-for-Sustainable-Homes>.

<sup>121</sup> [http://www.thetelegraphandargus.co.uk/news/local/localbrad/9291209.Bradford\\_eco\\_homes\\_win\\_regional\\_award/](http://www.thetelegraphandargus.co.uk/news/local/localbrad/9291209.Bradford_eco_homes_win_regional_award/).

facilities...”.<sup>122</sup> Investment in biomass boilers and solar PV and solar thermal appear to offer particularly practical and financially robust routes for early implementation. The Council could also develop a new ‘Corporate Sustainable Buildings Policy to ensure that all new corporate buildings and, where appropriate, corporate refurbishments are completed and operated to achieve an ‘Excellent’ BREEAM rating.

## **10.8 Planning for a sustainable future**

Bradford Council plays the key role in planning decisions and in shaping the District’s economic development. Its regulatory role in this area of policy has enormous potential to accelerate the District’s transition to a post-oil economy. Its central involvement in ‘masterplan’ development schemes such as the Bradford-Shipley Canal Road Corridor is a notable current example. The Council also determines the planning decisions relating to the 500+ new homes built each year in the District, their energy consumption and whether or not these buildings incorporate renewable energy technologies.<sup>123</sup> To the Council’s credit, therefore, ‘Aim 6’ of the Framework for Action identifies a wide range of measures that are being developed in relation to the District’s buildings with the overall aim of securing “a 20% reduction in energy consumption from buildings, domestic and commercial, by 2015”.<sup>124</sup>

In fact, as far as the Framework is concerned, the Council is committed to more actions during 2012 in relation to buildings (Aim 6) than in any other area of policy. Several of these are worth noting in relation to renewable energy. Action 3 (as already mentioned) states that the Council will “develop financial and business models to support the development of community renewable energy enterprises including infrastructure and management support”. Action 5 states that the Council will “ensure that new development is responsive to measures identified within the

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<sup>122</sup> ‘Our District, Our Climate, Our Responsibility’, Bradford Council, 2012, p.21:  
<http://www.bradford.gov.uk/NR/rdonlyres/398FF4E4-A46F-4FFC-90CB-F19936E81594/0/OurDistrictOurClimateOurResponsibility.pdf>.

<sup>123</sup> For current information about the number of homes built in the district, see Table 253, ‘Permanent dwellings started and completed, by tenure and district’, Department for Communities and Local Government:  
<http://www.communities.gov.uk/housing/housingresearch/housingstatistics/housingstatisticsby/housebuilding/livetables/>.

<sup>124</sup> ‘Our District, Our Climate, Our Responsibility’, Bradford Council, 2012, p.22:  
<http://www.bradford.gov.uk/NR/rdonlyres/398FF4E4-A46F-4FFC-90CB-F19936E81594/0/OurDistrictOurClimateOurResponsibility.pdf>.

Bradford LCLIP (Local Climate Impact Profile), building in climate change impact resilience at macro and micro planning levels”. Action 6 states that the Council will “ensure that the District promotes and secures greater use of decentralised and renewable or low carbon energy in new development through adopted Local Development Framework Development Plan documents”. Action 7 states that the Council will “ensure the District sets ambitious but viable targets for the level of energy supply new development is required to obtain from decentralised/renewable low carbon sources, e.g. securing 10% of energy from decentralised and renewable or low carbon sources for new developments of more than 10 dwellings or 1000 square metres of non-residential floor space”. Action 11 states that the Council will “develop a Sustainable Design Guide for the District to inform development”. Finally, Action 12 (as already mentioned) states that the Council will “work with communities to develop real opportunities to take positive action on climate change, in particular by encouraging community-led initiatives to reduce energy use and secure more renewable and low carbon energy”.<sup>125</sup>

The Council needs to follow through on these commitments in the near future – as the Framework aims to do - in order to align its planning policies more closely with its corporate commitment to a low carbon future. The new National Policy Planning Framework (NPPF) can facilitate this in so far as its ‘direction of travel’ is clearly towards pressing developers to build more sustainable housing - albeit with a “greater emphasis on the need for schemes to be viable”.<sup>126</sup> The core planning principles of the NPPF refer to the need to “encourage the use of renewable resources (for example, by the development of renewable energy)” (p.5); the NPPF goes on to state that “to support the move to a low carbon future, local planning authorities should...actively support energy efficiency improvements to existing buildings...and when setting any local requirement for a building’s sustainability, do so in a way consistent with the Government’s zero carbon buildings policy and adopt nationally described standards” (p.22); the NPPF then says that to “help increase the use and supply of renewable and low carbon energy, local planning authorities

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<sup>125</sup> ‘Our District, Our Climate, Our Responsibility’, Bradford Council, 2012, p.22:  
<http://www.bradford.gov.uk/NR/rdonlyres/398FF4E4-A46F-4FFC-90CB-F19936E81594/0/OurDistrictOurClimateOurResponsibility.pdf>.

<sup>126</sup> Written information provided by the Planning, Highways and Transportation Department, Bradford Council, November 2012.

should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources" (p.22); and that councils should "identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supply systems" (p.23).<sup>127</sup>

The fact that Bradford's current draft Local Development Framework (LDF) is crowded with supportive references to renewable energy is welcome, especially as the "greater production of renewable energy" was identified as a concern for local communities during the consultation phase.<sup>128</sup> At the time of writing, the draft LDF refers to "locating development where it will support opportunities for the delivery of renewable and low carbon energy" (p.47); to using "the opportunities provided by increased development...to maximise renewable energy generation (p.75); to creating a "more successful and competitive district economy" by delivering "sustainable construction, renewable energy, resource and waste efficiency and environmental technologies and the low carbon economy" (pp.108-9); to "ensuring that new developments of more than 1000 sq metres of non residential floorspace will secure at least 10% of their energy from decentralised and renewable or low carbon sources and meet 'BREEAM Very Good' standards" wherever "feasible or viable" (p.123); to "maximise renewable energy capacity in new developments and secure greater use of decentralised, renewable or low carbon energy by setting ambitious and viable targets" (p.125); to ensure that "new development of more than 10 dwellings should secure at least 10% of their energy from decentralised and renewable or low carbon sources" wherever feasible or viable (p.178); to "facilitating community led renewable energy generation projects and maximising the potential for delivery within the Leeds City Region" (p.227); and to the way in which "renewable energy developments could benefit the local economy" (p.227).<sup>129</sup>

It is now vital that, when key decisions are made, Bradford Council insists on low carbon development and renewable energy technologies as a core element in

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<sup>127</sup> <http://www.communities.gov.uk/documents/planningandbuilding/pdf/2116950.pdf>.

<sup>128</sup> 'Local Development Framework for Bradford, Core Strategy Development Plan Document, Further Engagement Draft, October 2011, p.21: <http://www.bradford.gov.uk/NR/rdonlyres/C7242F01-FA23-4D17-8D6E-50DF85C144A2/0/CORESTRATEGYFURTHERENGAGEMENTDRAFT.pdf>

<sup>129</sup> 'Local Development Framework for Bradford, Core Strategy Development Plan Document, Further Engagement Draft, October 2011: <http://www.bradford.gov.uk/NR/rdonlyres/C7242F01-FA23-4D17-8D6E-50DF85C144A2/0/CORESTRATEGYFURTHERENGAGEMENTDRAFT.pdf>.

regeneration projects such as the Bradford-Shipley Canal Road Corridor mentioned above. The magnificent Greenhouse building in Beeston shows what can be achieved when sustainability is built into mixed residential and business premises on this scale.<sup>130</sup> Most other English councils have incorporated ambitious sustainability conditions into their planning decisions over the past decade. One simple requirement, for example, would be to insist that buildings should have a south facing aspect and roof wherever possible to maximise the potential for solar thermal heating and solar PV.

Merton Borough Council led the way in 2003 by insisting that new non-residential developments above 1000m<sup>2</sup> should incorporate measures to generate at least 10% of their energy use from on-site renewables. Croydon Borough Council became the first English council to extend this policy to include residential developments in 2005. Since then, at least 325 out of 390 local authorities in England have apparently adopted similar policies.<sup>131</sup> In fact, Merton subsequently strengthened its insistence on renewables in its Local Development Framework in stating that “the council will require all development (either new build or conversion), with a floor space of 75 square metres or one or more residential units, to incorporate on-site renewable energy equipment to reduce predicted carbon dioxide emissions by at least 10 per cent”.<sup>132</sup>

It is important to note that, in the case of Merton and Croydon’s pioneering experience, these kinds of conditions do NOT seem to undermine the viability of development schemes or deter the kind of inward investment sought by Bradford’s planners. Here in West Yorkshire, for example, Kirklees Council has stipulated since 2007 that all new buildings have to achieve a BREEAM rating of either ‘Very Good’ or ‘Excellent’ and that all residential and non-residential developments larger than 500m<sup>2</sup> have to incorporate renewable energy generation.<sup>133</sup> Of course, Bradford has its own particular economic challenges and this is an understandable concern for the Council’s senior development planning officers. But the Town and Country Planning

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<sup>130</sup> <http://www.greenhouseleeds.co.uk/welcome>.

<sup>131</sup> A useful summary of the ‘Merton Rule’ can be found at [http://www.icax.co.uk/The\\_Merton\\_Rule.html](http://www.icax.co.uk/The_Merton_Rule.html).

<sup>132</sup> ‘Planning for Renewables’, Frank Booty, Premises and Facilities Magazine, January 2007, p.27:

<http://www.actionfm.org/documents/renewablespdf.pdf>.

<sup>133</sup> ‘2025 Kirklees Environment Vision’: [www.kirklees.gov.uk/you-kmc/kmc-policies/environmentvision.pdf](http://www.kirklees.gov.uk/you-kmc/kmc-policies/environmentvision.pdf).

Association has suggested that Merton and Croydon's positive experience may be a useful reference point for what can be achieved across the UK:

*“Target setting through planning policy provides both planners and developers with more certainty. Targets can also be an effective way of measuring progress, and should therefore be regarded as being good practice. The levels set will vary, and be determined in part by the economic circumstances or priorities of the particular authority. The original policy, developed by the Merton, based its 10% target on an average 3% increase in capital costs. The survey demonstrated a generally neutral attitude towards the use of Merton Rule policies by developers. This suggests that local authorities need not be afraid to set challenging targets reflecting the need to increase renewable energy supply. In a number of cases targets far higher than 10% have been set: time will tell how effective some of these will be”.*<sup>134</sup>

Today, leading councils in the sustainability field are giving further thought to maximising opportunities to promote renewable energy, as well as a range of other sustainable buildings measures, as they finalise their new Supplementary Planning Guidance documents in line with the NPPF. Bristol City Council's planning guidance, for example, will apparently include a requirement for developers *“to secure at least a 20% saving in CO2 emissions from energy use in new development through onsite generation of renewable energy; and to encourage the use of district heating schemes in new development”*.<sup>135</sup> The government's Code for Sustainable Homes will require all new homes to be carbon neutral from 2016 onwards, but there is no reason for councils to wait until then; and Bristol, Croydon, Kirklees, Merton and Woking provide five valuable examples of best council practice in this sustainable policy area that Bradford could seek to emulate.

The lesson is that Bradford Council should at least consider adopting ambitious planning regulations and guidance and ensure that planning and development officers and planning panels are aware of the need to push hard in these directions

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<sup>134</sup> 'Using the 'Merton Rule', Report of a TCPA survey of local authority planning departments in England, Town and Country Planning Association, July 2006: [http://www.rudi.net/system/files/paper/optional\\_file/using\\_merton\\_rule.pdf](http://www.rudi.net/system/files/paper/optional_file/using_merton_rule.pdf).

<sup>135</sup> 'Climate Change and Sustainability Practice Note', Bristol City Council, September 2011, p.5: [http://www.bristol.gov.uk/sites/default/files/documents/environment/greener\\_living/sustainable\\_building/Climate%20Change%20and%20Sustainability%20Practicessept11.pdf](http://www.bristol.gov.uk/sites/default/files/documents/environment/greener_living/sustainable_building/Climate%20Change%20and%20Sustainability%20Practicessept11.pdf).



between now and 2020.<sup>136</sup> The challenge, as Woking Council's draft Core Strategy put it in 2011, is "setting a framework that encourages renewable and low carbon energy generation and the delivery of high standards of sustainable construction of buildings, without compromising the viability of schemes".<sup>137</sup> The evidence is that this is feasible. Strong political leadership, of course, is absolutely vital. Merton's experience proves this, as illustrated by an account written in 2008 by the former Leader of Merton Borough Council, Andrew Judge:

*"As Leader of Merton Council at the time we introduced the 'Merton Rule', I can say that full credit should go to council officers like Nick Smart, who devised the rule, Adrian Hewitt who took up the cause with enthusiasm and very strong networking skills as well as the then Director of Environment and Regeneration, Richard Rawes, who gave this innovative and controversial planning policy full support.*

*However, there was also an important political dimension, which is usually left out of account, not least because the administration of Merton Council has since changed to Conservative and it is not in the interests of the current council to recognise the contribution of the previous Labour administration.*

*As Leader of Merton Council from 2001, I was insistent on two things: first that council officers must be free to innovate and take risks to attain improvement without feeling that councillors would always be breathing down their necks and second that Merton must aspire to be a 'cutting edge' environmental authority. In this context, I asked whether we could insist on developments including renewable energy.*

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<sup>136</sup> Drawing on Merton and Croydon's experiences, a prescriptive renewable energy policy should have the following minimum features: (1) It includes the word "Require" or "Expect"; (2) It states it is for "new build or conversion" – to catch change of use in regeneration areas; (3) It is for the combined floor space of commercial and residential; (4) It establishes the floor-space and residential unit number threshold; (5) It states it is for on site renewable energy equipment – not buying in green energy from the grid (the rationales of the policy are to stimulate the micro-renewables economy, address fuel poverty, and lower energy bills for businesses); (6) It sets the % target – at least 10%; (7) It is for the "predicted energy usage" - It is not acceptable to build and then monitor usage and then retrofit the renewables. However, the policy should be implemented in terms of carbon not energy; (8) It says to provide "at least" 10% - which means that a higher target can be required if technically feasible and financially reasonable. Information sourced online in 'The Merton Rule: 10%+ Renewable Energy Planning Policy', presentation by Adrian Hewitt, London Borough of Merton, July 2006, Slide 3.

<sup>137</sup> 'Woking 2027: Planning the Future of our Borough'. Working Local Development Documents, Core Strategy Publication Document, July 2011, p.24: <http://www.woking.gov.uk/planning/policy/ldf/cores/woking2027/corestratpd>.

*When the Merton Rule was first proposed, as Leader I supported its introduction throughout and played a part in lobbying Whitehall to allow its inclusion in the UDP. Keith Hill MP, Parliamentary Under Secretary at ODPM at the time, was particularly helpful.*

*In this way, progressive political leadership, providing the space and support for the development of innovative policy, is really important to change”.<sup>138</sup>*

## **Key Recommendation 2: Buildings and Planning**

**That Bradford Council strengthens its building and planning policies in three ways. First, by ensuring that all new Council buildings brought ‘on stream’ are either zero carbon or net generators of energy, including that any affordable housing built by the Council is in accordance with Code 6 of the ‘Code for Sustainable Homes Standard’ (perhaps in conjunction with the development of a new ‘Corporate Sustainable Buildings Policy’). Second, by ensuring that its estate is progressively retrofitted to minimise energy use and maximise renewable energy generation before 2020, with particular reference to installing biomass heating, solar PV and solar thermal technology, and including the District’s school buildings as well (subject to suitable collaborative arrangements being agreed). Third, by ensuring that its planning guidance is upgraded in relation to climate change and low carbon/carbon neutral developments so (a) that all new developments secure at least a 20% saving in CO2 emissions from energy use through onsite generation of renewable energy and (b) that district heating schemes are automatically incorporated into major new developments.**

## **10.9 District-wide renewable energy ‘mapping’**

As noted earlier in this report, some mapping work has already been completed that shows the potential for developing a wide range of renewable energy projects across Bradford District. Bradford Council is currently developing this information in more depth, as the Framework for Action indicates (Aim 3, Actions 1 and 3; Aim 5, Actions

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<sup>138</sup> [http://academicmum.typepad.com/lcw\\_learning\\_history\\_inno/2008/04/adrian-hewitt-o.html](http://academicmum.typepad.com/lcw_learning_history_inno/2008/04/adrian-hewitt-o.html).

3 and 4).<sup>139</sup> There remains, though, a persuasive case for commissioning an early study that examines all of the potential locations for renewable energy projects in the District in more depth, including a full evaluation of the potential for exploiting biomass heating fuel (the latter could even be developed as part of a 'Biomass Supply Strategy' for Bradford District). A study of this sort was undertaken by the Energy Centre for Sustainable Communities on behalf of Woking Borough Council in 2010.<sup>140</sup> Energy mapping of this sort would be a very useful resource for community energy groups as they seek to develop their renewable energy projects in their localities, and contribute positively towards establishing district-wide carbon reduction targets to run in parallel with those of the Council.

## 10.10 A 'Solar Map'

Bradford District has approximately 200,000 domestic properties, plus thousands of commercial enterprises, many of which would be suitable for solar PV or solar thermal technology. The Council's estate alone has hundreds of buildings, as mentioned earlier. A 2004 renewable energy study by AEA Technology suggested that 9,500 homes across Bradford could potentially have domestic solar PV installed by 2021, contributing to a total solar PV output for the District of 10.7GWh by that date (it is worth noting that this estimate predated the introduction of Feed-in Tariffs for domestic solar PV in 2010 and therefore presumably did not take account of the extent to which these tariffs have subsequently boosted the potential for microgeneration across our District).<sup>141</sup>

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<sup>139</sup> Aim 3, Actions 1 and 3, state that by June 2012 Bradford Council will "review the District land use map to update for agricultural and forestry use in context of renewable energy potential..." and "[assess] biomass resource capacity and potential for the District with the managers of the Woodlands". Aim 5, Actions 1, 3 and 4, state that by the end of 2012 Bradford Council will "have developed renewable energy policies within the LDF linked to district opportunities plans", will "model the impact of renewable energy opportunities [to] offset district fossil fuel consumption", and will "scope opportunities to provide heat, power and alternative fuels for CBMDC operations and facilities...". 'Our District, Our Climate, Our Responsibility', Bradford Council, 2012, pp.20-21: <http://www.bradford.gov.uk/NR/rdonlyres/398FF4E4-A46F-4FFC-90CB-F19936E81594/0/OurDistrictOurClimateOurResponsibility.pdf>.

<sup>140</sup> [www.woking.gov.uk/planning/policy/ldfresearch/ccdriceeb.pdf](http://www.woking.gov.uk/planning/policy/ldfresearch/ccdriceeb.pdf)

<sup>141</sup> 'Planning for Renewable Energy Targets in Yorkshire and Humber, Final Report, Volume 2, Renewable Energy Resources', AEA Technology report for the Government Office for Yorkshire and Humber and the Yorkshire and Humber Assembly, December 2004, pp.28-29: <http://www.yhassembly.gov.uk/dnlds/Planning%20for%20Renewable%20Energy%20Targets%20Vol%202.pdf>.

As part of the 'energy mapping' outlined above, Bradford Council could create a 'solar map' of the District along the lines pioneered by Bristol Council.<sup>142</sup> This could be broken down by ward and would provide an additional source of information for local residents, businesses and community energy groups who are assessing the potential of their property for solar technologies. Bristol estimates that the city's buildings have the potential to generate up to a 384GWh of electricity annually, equal to a quarter of the city's electricity requirements.<sup>143</sup>

Bradford Council could also facilitate a 'Solar Group', again importing best practice from Bristol where a pro-active local 'open forum' partnership was established in 2011 to increase awareness of the potential for solar power across the city (the Bristol group includes the Council, the university, local solar installers and community energy groups).<sup>144</sup> This project could be launched in conjunction with community groups and local energy organisations like Sustainable Saltaire and would reinforce the promotional campaigns likely to be rolled out in support of the Leeds City Region Green Deal package.

## **10.11 Working with Bradford's Schools**

As noted earlier, Bradford's approximately 200 schools use far more electricity and gas than Bradford Council does and are therefore responsible for even greater quantities of carbon pollution. This is particularly serious given their presence as highly visible community organisations whose children and families take note of how the schools and their buildings are managed. To a large extent, the schools are responsible for their own energy management and carbon emissions as a result of delegated budgets and local management of schools. In addition, the extent to which school managers are 'resistant' to central direction means that the Council has limited powers to ensure that schools develop their own ambitious carbon management plans.<sup>145</sup>

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<sup>142</sup> Bristol's 'solar map' is an interesting way of providing additional information about solar PV potential for residents and local businesses: <http://www.bristol.gov.uk/page/environment/solar-energy#jump-link-0>.

<sup>143</sup> <http://www.solarpowerportal.co.uk/news/bristol-city-council-chart-its-solar-potential-2356>.

<sup>144</sup> [http://bristolsolarcity.com/?page\\_id=20](http://bristolsolarcity.com/?page_id=20).

<sup>145</sup> This was an aspect of the relationship between Bradford's schools and the Council that was mentioned by officers in my link member report on carbon management in 2009 – see pp.68-69: 'Bradford Council's Carbon Management', Link Member Report by Cllr Kevin Warnes, adopted by the Environment and Waste Management Improvement Committee, Bradford

Bearing these limited Council powers in mind, it is understandable that the District's schools are barely mentioned in the Council's 'Framework for Action' document.<sup>146</sup>

The Council could do better, though, as could our schools. There is, in fact, huge potential here for locally-driven energy reduction, efficiency and production that could galvanise local communities as part of our transition to a post-oil future. While acknowledging that Council officers are already liaising with schools in relation to energy use (the Environment and Climate Change Unit already has one officer dedicated to developing projects with the schools), the Council could possibly play a more pivotal role in helping our schools to decarbonise their energy use via joint projects, the government's Green Deal package and alternative sources of funding.

To begin with, the Council 'passes on' the cost of the Carbon Reduction Commitment (CRC) allowances that need to be purchased on behalf of the schools by the Council. This means that the schools are rewarded if they boost renewable energy and cut carbon and penalised if they do not. For its part, the Council is apparently determined to ensure that any incentives and fines associated with the CRC are shared by the schools. It is felt that school managers "worry" about relatively small amounts of money in their budgets and this will help to ensure that due regard is paid to carbon management.<sup>147</sup> No doubt this is true to some extent. However, it is also fair to say that one would have to search long and hard to find more than a handful of schools in the District that have invested in renewable energy technology in recent years, despite the Feed-in Tariffs that have been available since 2010.

More positively, the Council's Environment and Climate Change Unit (and other officers) are obviously in a good position to liaise with key school managers to persuade and help them to drive energy efficiencies and invest in renewable energy projects that will benefit their organisations and help to decarbonise the District.

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Council, 24 November 2009 (available on the Bradford Council committee agenda, reports and minutes web pages for the 2009-2010 municipal year, listed as Appendix A to Document K): <http://councilminutes.bradford.gov.uk/wps/portal/cm>.

<sup>146</sup> The only explicit reference to the District's schools is where the Framework encourages individuals to "lobby for a climate change policy at your workplace, school or college, or join a campaigning environmental group": 'Our District, Our Climate, Our Responsibility', Bradford Council, 2012, p.17: <http://www.bradford.gov.uk/NR/rdoonlyres/398FF4E4-A46F-4FFC-90CB-F19936E81594/0/OurDistrictOurClimateOurResponsibility.pdf>.

<sup>147</sup> 'Bradford Council's Carbon Management', Link Member Report by Cllr Kevin Warnes, adopted by the Environment and Waste Management Improvement Committee, Bradford Council, 24 November 2009, pp.68-69 (available on the Bradford Council committee agenda, reports and minutes web pages for the 2009-2010 municipal year, listed as Appendix A to Document K): <http://councilminutes.bradford.gov.uk/wps/portal/cm>.

Indeed, they are already doing so, as just mentioned. The Council could perhaps expand its efforts to work in partnership with other organisations to help the schools reduce their energy use and exploit renewable technologies, along the lines of Norfolk County Council's successful 'Energybusters' project run in association with the National Trust.<sup>148</sup> The Council could consider maintaining an online database of exemplar energy saving and renewable energy projects among our schools that would provide an invaluable means of sharing knowledge among education professionals and other members of the community involved in the schools' environmental decision-making (parent governors, staff governors etc). The Council could also coordinate a network of designated schools 'carbon champions' to keep in touch and share knowledge and ideas and help to drive forward carbon proposals, perhaps bringing this network together annually for a one-day event to share their experiences and encourage collaborative working. Alternatively, the Council could facilitate an arrangement whereby a 'third sector' organisation coordinates schools carbon networking of this sort on Bradford's behalf.

The Council could also work directly in partnership with individual schools to install renewable energy technologies. This is, perhaps, an obvious suggestion, and will no doubt begin to happen soon to some extent, but the underlying point is that hard-pressed educational professionals do not necessarily have the time, technological expertise or financial acumen (or access to sufficient capital investment funds) to exploit the opportunities that exist currently to invest in renewable energy.<sup>149</sup>

Bradford Council could provide financing for solar PV, paid for by Feed-in Tariffs; the school would get free electricity. The Council could perhaps do more to encourage and facilitate joint ventures in which parents, governors and the surrounding local community invest in low carbon energy projects at the school that exploit the potential for solar PV, solar thermal heating, ground-sourced heat and (on suitable sites) wind turbines. The companies running the new BSF school buildings would also need to be involved. The Council could consider paying to install biomass boilers in schools and keeping the Renewable Heat Incentive payments, or could do

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<sup>148</sup> <http://www.schools.norfolk.gov.uk/view/NCC103987>

<sup>149</sup> According to information published by Bradford University's Ecoversity programme in 2009, the "main barriers to progress with the [sustainability] agenda in schools are staff time (84%); need for expertise (64%); limited resource (54%) and lack of information (50%)". Bradford Ecoversity – Bradford Sustainable Schools Network, Newsletter No.2, March 2009, p.3.

so in cooperation with local groups; the school would get free 'green energy' either way. An eighteen year phased capital investment programme (2013-2030) driven by the Council could aim to retrofit one Bradford school per month with carbon neutral biomass boilers and would surely be welcomed by school governors, applauded by parents and admired by children across the District. A scheme of this sort could be evaluated as part of the 'sustainability audit' of the Council's estate mentioned earlier. It would also need to be linked to the possible 'Biomass Supply Strategy' mentioned earlier, given the potential air quality and biomass import questions associated with this particular renewable technology.

Calderdale District Council has launched a limited project like this in a few local schools.<sup>150</sup> Anesco, an energy services company, has developed schemes of this kind on a much more extensive scale, apparently installing around ten boilers each month in the 50-100KW capacity range.<sup>151</sup> Bristol City Council has already installed solar PV systems in 30+ schools.<sup>152</sup> Norfolk County Council, as mentioned earlier, has set up a Carbon and Energy Reduction Fund covering the 2010-2013 period with a budget of £9.38 million in capital investment. This finance is available for schools seeking funding for low carbon proposals, provided that the projects achieve either a five year payback or a lifetime carbon saving of one tonne of carbon per £100 invested.<sup>153</sup> Bradford Council could establish its own capital investment fund that would be available to any local schools and partner community energy groups that develop suitable renewable energy proposals. This could even be one of the investment streams managed by a Council-owned 'energy services company'.

The Council also needs to ensure that carbon reduction is integrated into all aspects of the school maintenance, refurbishment and new build procurement processes. I noted in my 2009 carbon management report that the schools at that time were subject to a 3-5 year rolling programme of infrastructural maintenance and improvements.<sup>154</sup> It is reasonable to assume that they still are, and that Asset

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<sup>150</sup> <http://www.boilerguide.co.uk/uk-schools-considering-biomass-boilers>

<sup>151</sup> For information about Anesco, see <http://www.ansesco.co.uk/site/en/content-folder/about-us?Languageld=0>. See also <http://www.boilerguide.co.uk/ansesco-provides-free-biomass-boilers>.

<sup>152</sup> <http://www.bristol.gov.uk/page/council-action-climate-change>. See also [http://www.bristol.gov.uk/sites/default/files/documents/environment/climate\\_change/CC%26ESF%202012-15%20FINAL.pdf](http://www.bristol.gov.uk/sites/default/files/documents/environment/climate_change/CC%26ESF%202012-15%20FINAL.pdf).

<sup>153</sup> <http://www.schools.norfolk.gov.uk/view/NCC103987>.

<sup>154</sup> 'Bradford Council's Carbon Management', Link Member Report by Cllr Kevin Warnes, adopted by the Environment and Waste Management Improvement Committee, Bradford Council, 24 November 2009, pp.70-71 (available on the Bradford

Management manages an 'assessment matrix' that reviews the needs of all the schools and recommends successive batches of schools requiring urgent attention for inclusion in the Council's 'Primary Capital Programme'. The carbon performance of the schools should be an explicit feature of this assessment matrix (this was not the case in 2009). Learning Services then looks at each batch of schools and designs briefs that provide a detailed 'vision' for each school outlining how their redevelopment should proceed. This stage, too, needs to consciously consider the carbon dioxide emissions of the schools and how these can be substantially reduced (this was also not the case in 2009). The 'brief' then passes into the hands of the Facilities Management team for revising and implementing. Here, too, climate considerations need to be paramount in order to secure the best possible reductions in carbon dioxide emissions (again, they were not being prioritised in 2009). This focus on carbon reduction will also ensure that any opportunities to access external funding streams (such as the Community Sustainable Energy Programme) are fully exploited.<sup>155</sup>

## **10.12 Partnerships with Bradford's communities**

Bradford Council has limited financial resources, organisational capacity and expertise in the field of renewable energy. It is also crucial that its response to peak oil and climate change attracts maximum public support. It is therefore absolutely essential that the Council seizes every opportunity to work in partnership with Bradford's communities, individual residents, businesses and partner organisations to develop shared renewable energy projects across the District. This is very much the approach adopted in Germany, where 40% of Germany's renewable energy investment is provided by ordinary individuals (51% if farmers are also included).<sup>156</sup>

Bradford Council has a wonderful opportunity to enlist the active support of its citizens in planning for, and investing in, a low carbon future. If local people and local community organisations are given the chance to invest in renewable energy schemes and to profit from them, the Council will help to generate extra income for

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Council committee agenda, reports and minutes web pages for the 2009-2010 municipal year, listed as Appendix A to Document K): <http://councilminutes.bradford.gov.uk/wps/portal/cm>.

<sup>155</sup> <http://www.communitysustainable.org.uk/>.

<sup>156</sup> 'Renewable Energies, a Success Story', published by the German Renewables Energy Agency: [http://www.unendlich-viel-energie.de/uploads/media/AEE\\_Flyer\\_Renewable\\_Energies-A\\_Success\\_Story\\_sep12.pdf](http://www.unendlich-viel-energie.de/uploads/media/AEE_Flyer_Renewable_Energies-A_Success_Story_sep12.pdf).



Bradfordians and galvanise local support for its ‘future-proofing’ proposals. Renewable energy projects could even provide lower energy tariffs for people living nearby, as is the case near a wind farm in Delabole, Cornwall.<sup>157</sup> The Council and local people could work together, enlisting investment from external providers where necessary, to generate financial and environmental benefits for Bradford District as a whole. The climate neutral Baildon Link Community Centre is a prime example of how visionary thinking among local people and partner organisations can create a better future for all. This innovative way of working dovetails well with the transformative organisational and delivery changes taking place in Bradford at present and should be the default approach for every renewable energy project that the Council seeks to invest in.

Bradford Council’s Environment and Climate Change Unit – to its credit - already recognises the need for community engagement and the value of working closely with social investment partners such as Sustainable Saltaire and CO2Sense (see below). The key, of course, is to translate this into sustained action and to ensure that community empowerment is a core element of every aspect of the Council’s renewable energy investment strategies. Aim 5, Action 2 of the ‘Framework for Action’ states that by the end of 2012 the Council will have “facilitated community led renewable energy generation projects with active commitment from community groups and local business”. Aim 6, Actions 3, 4 and 12 state that during 2012 the Council will “develop financial and business models to support the development of community renewable energy enterprises including infrastructure and management support”; will “present with our community partners three community renewable energy workshops in the District to identify three community based renewable energy projects to implement in 2012”; and will “work with communities to develop real opportunities to take positive action on climate change, in particular by encouraging community-led initiatives to reduce energy use and secure more renewable and low carbon energy”.<sup>158</sup>

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<sup>157</sup> [http://www.goodenergy.co.uk/blog/articles/2012/11/19/we-re-launching-the-uk-s-first-local-tariff?utm\\_campaign=Enews+-+November+2012&utm\\_source=emailCampaign&utm\\_medium=email&utm\\_content=http://www.bbc.co.uk/news/uk-england-cornwall-20395542](http://www.goodenergy.co.uk/blog/articles/2012/11/19/we-re-launching-the-uk-s-first-local-tariff?utm_campaign=Enews+-+November+2012&utm_source=emailCampaign&utm_medium=email&utm_content=http://www.bbc.co.uk/news/uk-england-cornwall-20395542).

<sup>158</sup> ‘Our District, Our Climate, Our Responsibility’, Bradford Council, 2012, pp.21-22: <http://www.bradford.gov.uk/NR/rdonlyres/398FF4E4-A46F-4FFC-90CB-F19936E81594/0/OurDistrictOurClimateOurResponsibility.pdf>.

There are a number of leading organisations that provide investment funds and technical support for community owned renewable energy projects. Energy4all has been providing expert support of this kind in the UK for a wide variety of communities and councils since the mid-1980s.<sup>159</sup> Another useful model for how this process of community engagement can achieve impressive future-proofing results is provided by the pioneering work of the Leeds-based organisation CO2Sense. This organisation is able to help community groups with the complex design, planning and financing challenges that are often associated with renewable energy projects, bringing in millions of pounds in external finance and enabling good ideas to be implemented on the ground in the communities where the energy can be generated for everyone's benefit. Two current examples of CO2Sense activity – in Saltaire and in the Doncaster area - illustrate what can be done.

- 'Sustainable Saltaire' is a local community interest company whose vision is for a "Saltaire area where collaboration, innovation and a pioneering spirit support a vibrant community living and learning together, to ensure a sustainable future, both for this unique place and its people".<sup>160</sup> They have a 'ten year plan' for the village, developed with CO2Sense, which maps how this ambitious local community is looking for ways to invest in renewable energy between now and 2022. From Bradford Council's perspective, this plan is crucial because it clearly shows how much could potentially be done if the local authority were to make it a priority to work in partnership with local people as a core element of its post-carbon strategising. On their own, the residents can of course invest in relatively small scale renewable energy projects. With Council support, however, much larger renewable energy schemes become possible within the locality: these could include installing a 500KW biomass boiler at the Shipley Pool and investing in a 5MW biomass fuelled district heating scheme rolled out in phases to provide renewable heat to Shipley College and local homes. In fact, there is apparently potential here in this part of the District for almost 24GWhs of renewable energy to be generated annually. The total estimated capital cost of this 'large-scale deployment' scenario would be £8 million, funded from a range of sources including the Council. The payback times for this investment would range from

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<sup>159</sup> <http://www.energy4all.co.uk/home.asp>.

<sup>160</sup> <http://sustainablesaltaire.org/about-us-2/>.

two years, in the case of Shipley Pool's new biomass boiler, up to fourteen years for some of the solar PV installations; and the annual carbon savings would be approximately 6,000 tonnes.<sup>161</sup>

- The 'Norton Energy Community' 5MW wind energy project offers a second valuable example of the collaborative working being undertaken by CO2Sense, who provided £185,500 in 2011 to help progress the project to the formal planning stage. Origin Energy is the partner company involved that is financing and building the two new 2.5MW wind turbines. Norton Parish's community cooperative submitted its planning application to Doncaster Council in August 2012.<sup>162</sup> The proposed turbines will be community-owned through an arrangement with Origin Energy and are expected to generate 13GWh of electricity each year. They will save over 7,000 tonnes of carbon and inject around £300K into the local economy annually (rising to £600K+ once the project's 12 year payback period is over).<sup>163</sup>

### **Key Recommendation 3: Community Empowerment**

**That Bradford Council (a) prioritises community empowerment as a core element of every aspect of its investment strategies for renewable energy; and (b) liaises with potential third sector partner organisations to review how this can be achieved in practice on the widest possible scale across the District, including in collaboration with local schools.**

## **10.13 A new 'Bradford Power Company'**

Ultimately, of course, Bradford Council and our schools are only small part of the District-wide carbon picture. Bradford as a whole emits approximately 2.6 million tonnes of carbon pollution each year.<sup>164</sup> The biggest challenge for the Council is to

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<sup>161</sup> 'Sustainable Saltaire – A Model Future', Report produced by CO2Sense, 2012, pp.20-22:

<http://sustainablesaltaire.org/wp-content/uploads/2012/03/10YearPlan.pdf>.

<sup>162</sup> <http://www.nortonenergycommunity.org/index.html>.

<sup>163</sup> <http://www.co2sense.co.uk/files/5413/3718/3006/Origin.pdf>. For details of the community management side of this project and its financing arrangements, see: <http://www.nortonenergycommunity.org/Documents/Community%20Structures.pdf>.

<sup>164</sup> This figure of 2.6 million tonnes dates back to 2009 and is the most recent data available. 'Action for climate change and environment performance, Bradford Council, Report of the Strategic Director of Regeneration and Culture to the meeting of Environment and Waste Management Overview and Scrutiny Committee to be held on 24 July 2012', Report D, p.3: [http://councilminutes.bradford.gov.uk/wps/portal/!ut/p/c5/dYzBCoJAFEW\\_xS94z3G0aTmZOUUKWprNZpAQ0VIHEku\\_PkHa1bnLyzkgYV6bD1WZ91XX5g\\_IQDoKGeXkQljNkRHT80XKcAEukCFVp5rpYOyz4-](http://councilminutes.bradford.gov.uk/wps/portal/!ut/p/c5/dYzBCoJAFEW_xS94z3G0aTmZOUUKWprNZpAQ0VIHEku_PkHa1bnLyzkgYV6bD1WZ91XX5g_IQDoKGeXkQljNkRHT80XKcAEukCFVp5rpYOyz4-)

play a leading role in driving down these wider emissions by building partnerships with other organisations and community groups that, in turn, empower local businesses and residents to make their energy use more sustainable. This will also open up additional opportunities for the Council to power up its own renewable energy resources.

Bradford Council could play a more pivotal role in transforming the way the District generates its own energy by setting up one or more new local companies geared to provide district heating and power to local public sector organisations, local businesses and homes. Ironically, in some respects this would be a 'back to the future' scenario for the District bearing in mind that Bradford closed its 75MW coal-fired power station on Valley Road as recently as 1976. One clear opportunity to develop a district heating network will be presented once the new Resource Recovery Facility is up and running at Bowling Back Lane by the middle of the decade. This is an option as the plant will be 'not CHP precluded' – in other words, a heating network is feasible provided that connecting pipes are run right into the site rather than merely to its perimeter. The Facility could therefore provide up to 15MW of heat for a district heating network managed or co-managed by the Council in some way.<sup>165</sup>

Two practical approaches to developing district heating and power schemes in general would be (a) for the Council to work in partnership with an energy provider to set up a district heating scheme and provide other low carbon energy services; and/or (b) for the Council to set up its own energy services company (ESCO) to do likewise.

Taking the first approach mentioned, several councils have partnered with energy companies to set up district heating schemes since the 1980s. Whether these use renewable fuels or rely on gas-fired combined heat and power (CHP) as most do, they achieve significant carbon savings for the locality. The advantage of these partnerships is that the private sector company usually provides all the initial capital

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<sup>165</sup> 'Resource Recovery Facility, Bowling Back Lane, Bradford, Application for Environmental Permit, EPR-JP3038CF/A001', URS Energy Management, July 2012, p.2: [http://www.pennineresources.com/websitefiles/energy\\_management.pdf](http://www.pennineresources.com/websitefiles/energy_management.pdf).

investment needed and also manage the scheme thereafter, thereby greatly simplifying the role of the council. In return, the council supports the energy scheme in a range of ways: for example, by taking heat for council buildings, promoting the scheme to other potential users, providing general support via its planning and highways departments and providing land at peppercorn rents for the facilities required.<sup>166</sup>

■ Sheffield City Council set up a partnership with Veolia Environmental Services in 1988 to run a district heating network. It is apparently now the largest in the UK, providing around 120GWh of heat annually to 140+ buildings and 2,800 homes. In addition, Sheffield's Energy Recovery Facility can generate up to 19MW of electricity for local use.<sup>167</sup> The heating network apparently cuts the city's carbon emissions by 21,000 tonnes per annum.<sup>168</sup>

■ Birmingham City Council has formed a district energy company in partnership with Cofely Solutions. The CHP district energy scheme that has been set up generates over 41GWh of heat and 6.7GWh of electricity per annum. Although the CHP boilers are gas-fired and do not use any renewable resources, their use contributes towards significant carbon savings compared to conventional power generation.<sup>169</sup> The scheme provides another useful example of how a council can pro-actively engage with the private sector to drive down emissions.

■ Leicester City Council, like Birmingham, has established a £15 million partnership (the Leicester District Energy Company) with Cofely Solutions that will use a combination of gas fired CHP and biomass boilers to provide 5MW+ of heating and hot water to 15 civic buildings, the University of Leicester and around 3,000 homes and achieve CO2 emissions savings by 12,000 tonnes per annum. Nearly

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<sup>166</sup> 'Urban Community Heating and Cooling, the Southampton District Energy Scheme', International Energy Agency DHC programme case study, p.7: <http://www.iea-dhc.org/download/KN1640%20Southampton%20v2.pdf>.

<sup>167</sup> [http://www.chpa.co.uk/chp-with-district-heating\\_187.html](http://www.chpa.co.uk/chp-with-district-heating_187.html).

<sup>168</sup> [http://www.local.gov.uk/web/guest/climate-change/-/journal\\_content/56/10171/3510798/ARTICLE-TEMPLATE](http://www.local.gov.uk/web/guest/climate-change/-/journal_content/56/10171/3510798/ARTICLE-TEMPLATE).

<sup>169</sup> <http://www.cofely-gdfsuez.co.uk/en/solutions/cofely-district-energy/district-energy-schemes/birmingham-district-energy/birmingham-district-energy/>

all of the initial investment has been provided by Cofely, with additional funding from the Community Energy Saving Programme (CESP).<sup>170</sup>

- Southampton City Council is a pioneer in the field of district heating in the UK, including in its use of renewable energy. The Council partnered in 1986 in Utilicom (now Cofely Solutions), who invested £7 million in a new district energy network. The scheme now produces over 70GWh of energy per year using CHP, biomass and geothermal energy, and has cut Southampton's annual carbon emissions by 12,000 tonnes.<sup>171</sup>

Moving on to the second approach mentioned above, two councils – Woking and Bristol - have been even more ambitious in some ways by establishing their own local energy services companies (ESCOs). A third, Norfolk County Council, is about to do so. The advantage of an ESCO arrangement is that the council has greater control over the resulting energy projects and can therefore take on a broader range of activities if it wishes to do so and as circumstances change. The ESCO could, for example, work closely with community energy groups as part of its wider-ranging remit, as well as with key sustainable energy pioneers such as the Ecoversity project managed by the University of Bradford. The council also retains much more of the income from the energy generated and marketed and can then use this to fund continuing renewable energy and carbon reduction schemes. The obvious downside is that the council is more directly responsible for the management and financing arrangements than is the case in the partnership examples outlined above. As is the case with those partnership arrangements, though, there is no apparent reason why Bradford should not at least consider setting up its own ESCO as a means of enhancing the District's energy resilience and economic prospects and driving down its carbon pollution.

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<sup>170</sup> <http://www.cofely-gdfsuez.co.uk/en/solutions/cofely-district-energy/district-energy-schemes/leicester-district-energy/leicester-district-energy/>.

<sup>171</sup> For an excellent summary of Southampton's district energy scheme, see the case study published by the International Energy Agency: 'Urban Community Heating and Cooling, the Southampton District Energy Scheme', International Energy Agency DHC programme case study, p.7: <http://www.iea-dhc.org/download/KN1640%20Southampton%20v2.pdf>. See also: <http://www.southampton.gov.uk/s-environment/energy/Geothermal/>; and <http://www.greenpeace.org.uk/climate/case-study-southampton>; and [http://www.dekb.co.uk/energy%20vision%20\(6\).pdf](http://www.dekb.co.uk/energy%20vision%20(6).pdf); and <http://www.cofely-gdfsuez.co.uk/en/solutions/cofely-district-energy/district-energy-schemes/southampton-district-energy/southampton-geothermal/>.

■ Woking Borough Council was the pioneering council as far as this approach is concerned, setting up an energy and environmental services company called Thamesway Limited in 1999. This has enabled the Council to engage in joint energy projects within and beyond the Borough to cut its own local carbon dioxide emissions and generate profits that are reinvested in fresh low carbon projects (such as the CHP station in Woking town centre).<sup>172</sup> By March 2006, Woking Council had reduced its own energy use by 51% compared to 1990, cut its own CO2 emissions by 81% and, amazingly, also achieved a 21% reduction in carbon pollution across the Borough as a whole.<sup>173</sup>

■ Earlier this year, Bristol Council announced that it will set up its own renewable energy services company along the lines pioneered by Woking. With start-up funds of £2.5 million from the European Investment Bank (EIB), the Council will use the company to initially manage up to £140 million of renewable energy and energy efficiency projects, mostly solar, that will apparently help to create 1,000 green energy jobs in the area. The planned projects include installing over 7,000 renewable energy heating systems on homes and public buildings and developing small district heating networks. Half of this funding will come from the EIB, the rest from the private sector. The Council hopes that this initiative will attract investment in the city worth as much as £2 billion – yes, *billion* - in the years ahead. The rationale is clear. According to Council Leader Barbara Janke:

*“This is a bold but necessary move for the city and we will be one of the first local authorities in the country to drive forward with such ambitious energy efficiency and renewable energy plans. In practical terms this will lead to cheaper bills for thousands of residents through investment in energy saving measures. This will also mean that as a city we will be generating our own energy, primarily through a major investment in solar energy generation”.*<sup>174</sup>

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<sup>172</sup> Councillor, Summer 2006, pp.16-17. Woking Borough Council's website provides further details:

[www.woking.gov.uk/environment/climate/Greeninitiatives/sustainablewoking](http://www.woking.gov.uk/environment/climate/Greeninitiatives/sustainablewoking).

<sup>173</sup> 'Thinking Globally, Acting Locally. Woking Borough Council Beacon Application, Tackling Climate Change', Information Sheets for the Beacon Assessment Team, 2007, p.25:

<http://www.woking.gov.uk/environment/climate/Greeninitiatives/beacon/tacklingclimatechangecasestudies>.

<sup>174</sup> <http://www.sustainablebristol.com/2012/02/bristol-first-uk-council-to-become-renewable-energy-company/>.

■ Lastly, in September 2011, Norfolk County Council decided to set up its own wholly-owned energy services company. Their ESCO will probably be funded initially by transferring uncommitted funds from the Council's Carbon and Energy Reduction Fund, repaying these from the Council's rolling capital programme, while also seeking external financing from the Green Investment Bank or via joint funding ventures. The ESCO will also be able to bid for additional resources from the Council's annual capital programme. It will reportedly focus initially on installing solar panels and biomass boilers, and will also "explore the potential to reduce energy poverty in Norfolk with innovative partnerships with businesses, and communities and partners in the public sector". It is worth noting the following comments made by Derek Murphy, the Leader of Norfolk County Council:

*"Make no mistake; this is an innovative approach for the public sector but it is one that I firmly believe will put this authority in an enviable and financially rewarding position. Not only will it mean we can capitalise on the emerging renewable energy sector by attracting additional investment to Norfolk but will also deliver real savings for Norfolk residents by reducing our energy bills and generating additional income for the County Council that can be ploughed back into critical front-line services. It is an ambitious but sensible proposal, and it demonstrates our commitment to reducing Norfolk's carbon footprint and making our county a cleaner, greener and safer place to live".<sup>175</sup>*

#### **Key Recommendation 4: Sustainable Energy Partnerships**

**That Bradford Council (a) urgently reviews the options for establishing partnership arrangements with private sector companies that would be capable of delivering renewable energy and district heating projects in our locality; (b) urgently reviews the options for establishing and managing its own Energy Services Company along the lines pioneered in Woking, Bristol and Norfolk; (c) ensures that these reviews include detailed consideration of the potential arrangements for establishing district heating networks, including in connection with the planned Resource Recovery Facility at Bowling Back Lane.**

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<sup>175</sup> <http://www.norfolk.gov.uk/News/NCC094652>.



## 10.14 A 'Sustainable Energy Group' for Bradford

Clearly, in order to drive district-wide renewable energy projects and transform the way the District uses energy, the Council and its local partners need to know what to do. A growing number of cities worldwide have tackled this problem by setting up 'Peak Oil Task Forces'. The invaluable experiences of Portland (Oregon, US) and Bristol (UK) merit particular consideration.

Portland City Council set up the Portland (Oregon) Peak Oil Task Force in 2006. The group included citizens and local businesses as well as council representatives. They spent six months assessing the potential impacts of peak oil and the possible strategies that Portland could develop in response. They reported in March 2007, and their recommendations were unanimously adopted by the city council. Among a range of measures, the Council agreed to "reduce oil and natural gas use in Portland by 50 percent by 2030".<sup>176</sup> It is worth emphasising, therefore, that Portland's goals were not limited to the Council's own activities, but encompassed the entire local community.

Portland city officials subsequently worked closely with a 'Climate Action Plan Steering Committee' in 2007 and 2008, as well as hundreds of members of the public, to produce an action plan that was adopted in 2009. This commits the city to achieving an overall cut in its carbon emissions by 80% by 2050, and by 89% per person (Portland's population, like Bradford's, is projected to increase substantially).<sup>177</sup> The plan also contains a wide range of policy commitments relating to buildings and energy use, transportation, waste management, urban design, food and agriculture, community engagement, urban forestry and natural systems. Three objectives relating to Portland City Council's own operations that need to be achieved by the end of this year (2012) are perhaps particularly worth noting as far as Bradford Council is concerned: first, to "purchase or generate 100 percent of all electricity required for City operations from renewable sources, with at least 15 percent from on-site or District renewable energy sources such as solar and biogas"; second, to "require that local government fleets, regulated fleets (e.g., taxis and

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<sup>176</sup> Portland City Council Resolution 36488, 1 March 2007: <http://www.portlandoregon.gov/bps/article/150163>.

<sup>177</sup> 'City of Portland and Multnomah County Climate Action Plan 2009', p.12: <http://www.portlandoregon.gov/bps/article/268612>.

waste/recycling haulers), and the fleets of local government contractors meet minimum fleet fuel efficiency standards and use low-carbon fuels”; and third, to “buy electric and plug-in hybrid vehicles for City and County fleets as they become commercially available”.<sup>178</sup>

Clearly, although Portland is roughly similar to Bradford in terms of population size, its system of governance and broader geo-political setting is radically different. To begin with, Portland is located in the midst of a region with huge wind energy potential that is already being exploited on a huge scale (a total of 2,513MW had been installed by 2011, the equivalent of more than one hundred Ovenden Moor windfarms<sup>179</sup>). It also has a very different form of governance – a small group of commissioners with powerful executive authority – compared with Bradford’s that probably made it easier for Portland City Council to reach a swift and firm decision on what it wanted to do about peak oil. Nonetheless, not only did Portland’s task force help to mobilise local people and organisations in the city to step up action in response to peak oil and climate change, their efforts inspired people in Bristol to do the same.

In Bristol’s case, a task force was set up in 2008 through collaboration between Bristol’s Green Capital Momentum Group and the Council. The group included ten participants drawn from the Council, the business sector and not-for-profit organisations. One year on, in late 2009, the group released their report. Like Portland’s, it addressed every aspect of the challenges of peak oil including social cohesion, emergency planning, transport, food, healthcare, public services, the local economy and energy.<sup>180</sup> Bristol’s 104-page report is incredibly impressive and helps to explain why their Council has subsequently launched such an ambitious array of low energy, low carbon projects.<sup>181</sup>

Bradford Council apparently intends to follow in the footsteps of these ‘transition giants’ by launching its own district-wide ‘sustainable energy group’ in early 2013 (this potential grouping has no formal title as yet, though it will possibly be known as

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<sup>178</sup> ‘City of Portland and Multnomah County Climate Action Plan 2009’, p.58:

<http://www.portlandoregon.gov/bps/article/268612>.

<sup>179</sup> [http://www.windpoweringamerica.gov/docs/installed\\_wind\\_capacity\\_by\\_state.xls](http://www.windpoweringamerica.gov/docs/installed_wind_capacity_by_state.xls).

<sup>180</sup> [http://postcarboncities.net/place/bristol\\_uk](http://postcarboncities.net/place/bristol_uk).

<sup>181</sup> <http://www.transitionbristol.net/wp-content/uploads/2009/10/Bristol-Peak-Oil-Report.pdf>

the ‘Sustainable Energy Business Group’) with a view to developing an energy plan for the District as a whole. This is a very big step, provided that it delivers real change. Relatively few other city councils have tried this worldwide, let alone in the UK (lesser known US case studies worth noting in addition to Portland include Bloomington in Indiana and San Francisco in California).<sup>182</sup> It is expected that Bradford’s grouping will “examine current and future energy capacity, resilience and security” and “identify projects for delivery”.<sup>183</sup> This is, potentially, extremely good news for Bradford. The Council would be well advised, though, to bear the lessons of Portland (and perhaps also of Bristol and Bloomington as well) in mind as it embarks on this ‘step change’ in its preparations for a post-carbon future. It is vital that this group is small yet includes all the key players, brings in expertise yet links to our communities, is ambitious yet delivers its conclusions quickly, and above all is determined to avoid becoming yet another low carbon ‘talking shop’.

Daniel Lerch, currently publications director of the California-based Post Carbon Institute, reportedly inspired Bristol to set up its task force after he made a presentation there in 2008.<sup>184</sup> He has since authored a ‘guidebook on peak oil and global warming for local governments’.<sup>185</sup> Lerch’s key recommendations relate to organising the energy group (including recruiting the right members and support staff); tightly structuring and running the group’s inquiries; analysing the city’s energy vulnerabilities clearly; developing conclusions that relate to the problems; and presenting the findings in ways that achieve the desired results.<sup>186</sup> Colleagues would do well to familiarise themselves with this research if they have not done so already.

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<sup>182</sup> Bloomington, Indiana, has also done so, publishing its report in October 2009 just after Bristol. So too have Austin, Texas, San Francisco, California, and Spokane, Washington. Bloomington’s 245 page report is available here: <http://bloomington.in.gov/media/media/application/pdf/6239.pdf>.

<sup>183</sup> ‘Action for climate change and environment performance, Bradford Council, Report of the Strategic Director of Regeneration and Culture to the meeting of Environment and Waste Management Overview and Scrutiny Committee to be held on 24 July 2012’, Report D, Appendix, p.4: [http://councilminutes.bradford.gov.uk/wps/portal!/ut/p/c5/dYzBCoJAFEW\\_xS94z3G0aTmZOUUKWprNzPzAQ0VIHEku\\_PkHa1bnLyzkgYV6bD1WZ91XX5g\\_IQDoKGeXkQIjNkrRHT80XKcAEukCFVp5rpYOyz4-QO53qKxmB7G591tOH3cFLpW8RjWjUtUi8yiNmRv6q2hd\\_q8v-BI4Siawq4glwpFylBFm8ci7ql-yBeJ-kuQfRN0M2gxas0PpAfkN0!dl3/d3/L0IDU0IKSkthWWtL\\_Q2xFskv0dvZ0FFSVFoakJLRVFBQUFFWkNnR1E0S1FwY0ZxQ0FLVUEhLzRDMWl5V19OcnhRREVTWkiKUKNJa2ZnIS83X0MwNDlwOFJCNjM0QzAwSU1SOVWWRlUwMEczLzlwNzlyOTQ0NzQ1My9kb2MvOTA1Mw!!/#7\\_C04208RB634C00IMR9UVFU00G3](http://councilminutes.bradford.gov.uk/wps/portal!/ut/p/c5/dYzBCoJAFEW_xS94z3G0aTmZOUUKWprNzPzAQ0VIHEku_PkHa1bnLyzkgYV6bD1WZ91XX5g_IQDoKGeXkQIjNkrRHT80XKcAEukCFVp5rpYOyz4-QO53qKxmB7G591tOH3cFLpW8RjWjUtUi8yiNmRv6q2hd_q8v-BI4Siawq4glwpFylBFm8ci7ql-yBeJ-kuQfRN0M2gxas0PpAfkN0!dl3/d3/L0IDU0IKSkthWWtL_Q2xFskv0dvZ0FFSVFoakJLRVFBQUFFWkNnR1E0S1FwY0ZxQ0FLVUEhLzRDMWl5V19OcnhRREVTWkiKUKNJa2ZnIS83X0MwNDlwOFJCNjM0QzAwSU1SOVWWRlUwMEczLzlwNzlyOTQ0NzQ1My9kb2MvOTA1Mw!!/#7_C04208RB634C00IMR9UVFU00G3).

<sup>184</sup> [http://postcarboncities.net/place/bristol\\_uk](http://postcarboncities.net/place/bristol_uk).

<sup>185</sup> ‘Post Carbon Cities: Planning for Energy and Climate Uncertainty. A Guidebook on Peak oil and Global Warming for Local Governments’, Daniel Lerch, Post Carbon Institute, August 2007. <http://www.postcarboncities.net/guidebook>.

<sup>186</sup> ‘Post Carbon Cities: Planning for Energy and Climate Uncertainty. A Guidebook on Peak oil and Global Warming for Local Governments’, Daniel Lerch, Post Carbon Institute, August 2007, pp.73-78.

It would also seem sensible to involve organisations with relevant expertise in this area at the outset, such as the Leeds-based CO2Sense or Energy4all.<sup>187</sup>

#### **Key Recommendation 5: District-wide Preparation for a Low Carbon Future**

**That Bradford Council establishes a small district-wide 'Sustainable Energy Group' in early 2013 with members drawn from the Council, the business sector, the 'Third Sector' and key community organisations, with a view to finalising a report by the end of 2013 that (a) addresses the energy challenges posed for our District by peak oil and climate change and (b) provides a practical basis for managing our transition towards a low carbon future.**

### **10.15 A 'zero carbon vision' for Bradford**

In the longer term, beyond 2020, Bradford will need to redouble its efforts to 'power down' its local economy and switch to renewable energy. As noted earlier, the UK government is committed to achieving an 80% cut in emissions by 2050, but deeper and earlier cuts may become necessary if climate change accelerates and the challenges of peak oil become more pressing than they already are. A report published in 2010 by the 'ZeroCarbonTeam2030', for example, made the case for decarbonising the UK economy more or less completely by 2030 and explained how this could be achieved through far-reaching energy efficiencies and investment in renewable energy.<sup>188</sup>

In the meantime, huge challenges lie ahead and the Council will need to demonstrate robust leadership in this area of policy. Budgets are tight and getting even tighter and many people are prepared to argue that investing the Council's time and resources in tackling climate change and peak oil is an unnecessary and costly distraction from the huge economic and social challenges facing the District. It is fair to say that, in these 'times of austerity', multi-million pound renewable energy projects are not greeted with universal acclaim by local people (especially in

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<sup>187</sup> <http://www.co2sense.co.uk/>.

<sup>188</sup> <http://www.zerocarbonbritain.org/>

circumstances where they are not invited to invest a personal stake in projects and thereby derive income from them).<sup>189</sup>

In these circumstances, therefore, it would be beneficial for Bradford Council to refresh its longer term energy 'vision' in order to encourage investment from businesses and community groups in the renewable energy that we will increasingly need. At present, Bradford Council has no carbon reduction or energy targets that stretch beyond 2020. The Council could begin to define a long term vision for where it would like to be, at least to bring it into line with the UK's statutory commitment to achieving 80% decarbonisation by 2050. If Bradford Council were to establish milestones that it expects to reach by 2030, 2040 and 2050, it would have an 'inter-generational' strategic context within which it could evaluate the considerable capital investments that will be required (bearing in mind that some of these investments will need more than ten years to 'payback'). Bristol City Council has a city-wide carbon reduction target of 30% by 2030 that extends well beyond addressing the Council's own activities.<sup>190</sup> As mentioned earlier, Portland City Council is committed to achieving an overall cut in its carbon emissions by 80% by 2050, and by 89% per person across the city.<sup>191</sup> Targets of this magnitude, perhaps linked to a specific Council 'Declaration' about peak oil, would be helpful in lending added corporate weight, public profile and legitimacy to the councillors and officers who are working to achieve transformational change in the Council's energy use. It would also send out an important signal to the wider District – including to partner organisations in the potential 'Sustainable Energy Business Group' mentioned above - that the Council is determined to show community leadership in this vital area of policy throughout the next two decades.



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<sup>189</sup> Two current renewable energy project proposals illustrate this. First, the Saltaire hydropower scheme has been supported by the vast majority of local people, who have responded positively during the Council's initial consultation, but a small minority of local residents remain implacably opposed (on the grounds that the scheme will undermine the amenity of Roberts Park and jeopardise the World Heritage Site status of Saltaire). Second, the recently approved proposals for new wind turbines on Ovenden Moor near Haworth have generated much local controversy, as the following press reports from August 2012 illustrate: <http://www.telegraph.co.uk/earth/energy/windpower/9485712/370ft-wind-turbines-could-tower-over-Bronte-country.html>; and [http://www.thetelegraphandargus.co.uk/news/9883858.Bronte\\_Society\\_fights\\_new\\_turbine\\_plan/](http://www.thetelegraphandargus.co.uk/news/9883858.Bronte_Society_fights_new_turbine_plan/). Details of the Ovenden Moor proposals can be found here: [http://www.eon-uk.com/downloads/Ovenden\\_Moor\\_Repower\\_Non\\_Technical\\_Summary.pdf](http://www.eon-uk.com/downloads/Ovenden_Moor_Repower_Non_Technical_Summary.pdf). Another anti-wind website worth visiting is the 'Save the Dales' campaign: <http://www.savethedales.co.uk/wind.html>.

<sup>190</sup> <http://www.bristol.gov.uk/page/council-action-climate-change>.

<sup>191</sup> 'City of Portland and Multnomah County Climate Action Plan 2009', p.12: <http://www.portlandoregon.gov/bps/article/268612>.

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