

Devon Strategic Partnership

stronger together

Sustainable Community Strategy for Devon

Theme Analysis

Prosperity from Sustainable Energy and a Low Carbon future

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Devon Strategic Partnership Sustainable Community Strategy

Strategic Analysis Template for Evidence Base

Prosperity from Sustainable Energy and a Low Carbon future theme analysis

Context: the DSP is producing a new Sustainable Community Strategy by mid 2007. One part of this document is to be a web based evidence base to be developed by early 2007. This document contributes to the evidence base by taking the statistical data that has been identified for every theme, and providing an expert strategic analysis that ideally has the backing of key agencies and organisations in the theme. When this information is added to the views of residents, agencies and organisations regarding current issues and a vision for the future, a clear mandate will be established for the issues that the Devon Strategic Partnership should be pursuing in the Sustainable Community Strategy.

Theme: Sustainable Energy and a Low Carbon future	
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Link to theme/ Devon Strategic Partnership (e.g. DSP theme champion, LAA lead): LAA Economy and Enterprise block lead, Devon Sustainable Energy steering group member	

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Signed on behalf of the theme:
Date:

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ISSUE No: One

TITLE OF ISSUE: Sustainable Energy and a Low Carbon Future

1 Identification of Issue

- a What is the issue for Devon?** The need to limit the scale of climate change to survivable levels by reducing human-made emissions of carbon dioxide from use of fossil fuels (and other greenhouse gas emissions) is a priority for every community on Earth.

There are three interrelated issues for Devon:

- i Devon needs to reduce its share of emissions urgently;
- ii Devon needs to realise the economic benefits of moving to a low carbon economy by reducing energy use, improving energy efficiency and creating opportunities for business growth of low carbon technologies, such as renewable energy;
- iii Devon needs to protect the health and well being of vulnerable individuals by eliminating fuel poverty, caused by increasing energy costs, low incomes and poorly insulated and heated homes.

The UK produces many more emissions per capita than the global average, so the scale of reductions required here is greater than elsewhere. Without the UK taking action, there can be little hope of ensuring less privileged, more populous and quickly developing nations also make their reductions. The scale of the required UK reductions means that Devon and every other sub region has to reduce its share of emissions. Nowhere else can reduce its share and Devon's too. Devon produces less emissions per capita than the SW and UK average due to our lack of heavy industry, but our per capita emissions from transport are higher than elsewhere, and rising.

Devon is also vulnerable to increasing energy prices because:

- i Devon needs to reduce its share of emissions urgently;
- ii incomes are lower than elsewhere;
- iii energy costs are higher than elsewhere, because we are at the end distribution networks and we have many areas off the gas main (the cheapest energy source for space & water heating and cooking).
- iv we have a higher than average number of hard to heat houses, many houses without basic energy efficiency installations such as lagged lofts and filled cavity walls;
- v we are more reliant on personal transport than elsewhere;
- vi we have a higher than average proportion of small businesses in our economy, who find it more difficult to respond to rising energy costs and invest in energy management and low carbon solutions.

- b Who does it affect?** Everybody – every person, every business, every organisation, every building, every journey.
- c Does it affect all of Devon geographically or certain parts?** Some are affected more than others:
- those living in fuel poverty and in hard to heat homes, especially frail older people, disabled people and young children.
 - energy intensive businesses;
 - small businesses who find it more difficult to adapt to changing energy costs and to invest in energy efficiency;
 - individuals and organisations in 'off-gas' areas, where heating and cooking costs are greater.

2 Justification/ demonstration of Issue

a How do you know the issue is there?

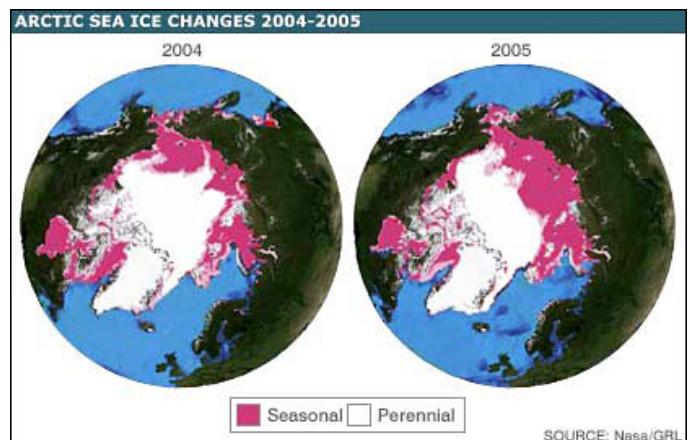
Targets to reduce carbon dioxide emissions are based on the global scientific consensus that increases in global average temperatures must be limited to 2°C. If emissions increase beyond the targets, temperatures will increase above 2°C which will result in runaway, irreversible climate change. This would be driven by positive feedback from the biosphere, where increased temperatures trigger further release of climate change causing emissions from natural systems (such as methane from thawing tundra and carbon dioxide from the death of tropical rain forests), which triggers further increases in global temperature which triggers further emissions etc.

There can be little doubt that human civilisation would not survive the consequences of a greater than 2°C increase in global average temperatures.

The Kyoto targets to reduce carbon dioxide emissions and the Government's additional target to reduce emissions by 60% by 2050 are based on scientific consensus that to limit global average temperature increase to 2°C concentrations of carbon dioxide in the atmosphere have to be stabilised at 450 parts per million (ppm).

Scientific observations of the impact of climate change to date are occurring at the extreme upper end of the range predicted by climate change models.

In March 2006 the highest ever recorded annual increase in atmospheric carbon dioxide concentrations was reported (+2.6ppm to 381ppm) to the highest the planet has known for hundreds of thousands of years.



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More recently NASA satellites have documented startling changes in Arctic sea ice cover between 2004 and 2005. The extent of "perennial" ice - thick ice which remains all year round - declined by 14%, losing more than three times the area of the UK.

Last month John Ashton, Britain's climate change ambassador said that climate change is "potentially the most serious threat there has ever been" to security and prosperity.

At the same time a report by the Tyndall Centre for Climate Change said the UK government target of a 60% cut in emissions by 2050 is insufficient and needs to be 70% by 2030. They have also worked out that Britain must not release more than 4.8bn tonnes of carbon dioxide between 2000 and 2050 if it is to meet the government's 60% reduction target. But their calculations reveal that the country has already emitted 25% of that in just the past six years, expected to rise to 45% by 2012.

It is clear that urgent, radical changes to drastically reduce the use of fossil fuels are required.

The Government has acknowledged the adverse effects of cold damp housing on the health and well-being on dwellers. As a result of the Warm Homes and Energy Conservation Act 2000 the Government has published a UK Fuel poverty strategy in 2001 which has the statutory target of eradicating fuel poverty in vulnerable householders by 2010 and in all other households by 2016. The Government defines a fuel poor household as one which needs to spend more than 10% of its income to achieve adequate levels of warmth in the home. Fuel poverty also features in the Energy White Paper 2003 as one of the four key goals for energy policy. In 2004 the Government reviewed its action on fuel poverty and set out the way ahead until 2010 in the document 'Fuel Poverty in England: The Government's Plan for Action'.

Eradicating fuel poverty is a crucial step towards developing sustainable communities under economic, health and social inclusion aspects.

b Links to other strategies

Document or author	Title of document and web address?	How is issue raised?	Implications for Devon
Local Area Agreement	Devon Local Area Agreement - www.devon.gov.uk/local_area_agreement.htm	Economy and Enterprise block, Outcome C. Environment as an Economic Driver. Fuel Poverty - Through the Common Ground report A County for Everyone Healthy Communities block	Increase Economic competitiveness by driving business resource efficiency; Increasing productivity by growing the renewable energy sector; Reducing leakage from the local economy by reducing energy expenditure. Impact on low income and vulnerable households Reduce Fuel Poverty
Regional Spatial Strategy		Various policies related to energy and reducing carbon emissions	To be implemented via Local Development Frameworks; County target for renewable electricity and heat generation.
District / Community Strategies	Devon Affordable Warmth Strategy	County wide action plan that involves relevant agencies and organisations	Eradication of fuel poverty in Devon; healthy and sustainable communities; promotion of sustainable energy technology

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MCTi/ Parish/Town plans			
Publications from authority bodies or other organisations in this sector			
Major Research	Stern Report		
Central govt	Energy Review, Climate Change Bill,		
Devon Rural Strategy		Environment and Climate Change Priority	Environmental threat and economic opportunity
State of the South West report			
Other reports such as State of the SW Environment, SWCCIP, Govt Area profiles and neighbourhood statistics.			
Other	Devon Sustainable Energy Strategy	Being developed by Devon Sustainable Energy Network for Devon, Plymouth and Torbay Strategic Partnerships	Identifies urgent need for action and will provide priorities for action for next 3-5 years
	Low Carbon Housing and Fuel Poverty Strategy and Action Plan	Regional Steering Group with support from GOSW, RDA and RA	Will support work in Devon on fuel poverty and housing issues; source of advice and project funding

c Links to / impact on other themes / issues

Theme/ issue	Possible links to/ impact of this issue on:
Environmental sustainability, including climate change and sustainable energy	Strong Link - same theme
Economic sustainability	Strong Link – a priority issue for improving business competitiveness and productivity
Social sustainability e.g. community cohesiveness and	Strong links to Health and Well being via Fuel Poverty agenda

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individual well being	
Rural issues	Strong link – energy costs in rural areas higher (off gas), housing generally ‘harder to heat’ (e.g. solid walls), opportunity for diversification of rural economy via renewable energy generation and fuel crops
Housing	Strong Link – energy efficiency of housing stock must be improved, ‘affordable housing’ must be affordable to run in terms of energy costs, Government aspiration for all new development to be zero carbon by 2016
Health	Strong link – fuel poverty agenda has major health impacts
Older people	Strong Link – over 60% of fuel poor households are over 60
Children and young people	Strong Link – fuel poverty effects health and well being of young people
Safer Devon	No direct crime or perception of crime link
Strong Communities	Link – opportunities for community engagement through energy agenda e.g renewable energy in community facilities, community groups involved in energy awareness raising.
Culture	No direct link
Transport and accessibility	Strong Link – transport large and growing proportion of Devon’s carbon emissions; improving access to comfortable housing and workspace;
Other	
Social Inclusion and income maximisation	Common Ground and Welfare Benefits Implementation Group have identified fuel poverty as key issue for vulnerable and poor households. Action to maximise incomes is part of the action plans for both groups and is integrated into training, LPSA2 project for older people and children with disabilities etc.

3 Drawing on the above, what therefore is/ are the challenge(s) Devon must meet to address this issue?

Devon Sustainable Energy Challenge: a low carbon future - soon

Environment – reduce emissions of carbon dioxide from non renewable energy use (and emissions of other greenhouse gases) drastically and urgently.

Devon (ex. Plymouth and Torbay) produced the equivalent of 10.3 million tonnes of climate change causing carbon dioxide (and other greenhouse gases) in 2005, over 80% of this was from energy use. The following annual reductions are needed to meet Devon's share of the targets designed to stabilise global temperature increase at 2°C, the threshold required to avoid irreversible, runaway climate change:

- To meet the Kyoto target (12.5% emissions reduction on 1990 figures by 2008) requires a reduction in emissions of 0.9 million tonnes in 2 years (8.7% less than Devon's 2005 carbon emissions);
- To meet the 2010 target (20% reduction on 1990 figures) requires a reduction of 1.4 million tonnes in 4 years (13% less than Devon's 2005 carbon emissions); and
- To meet the 2050 target (60% reduction on 1990 figures) requires a reduction of 5 million tonnes in 44 years (48% less than Devon's 2005 carbon emissions).

The latest scientific consensus is that the UK actually needs to reduce its emissions, as part of the global response, by 70% - 90% by 2030 in order to avoid an increase of 2 C in average global temperatures.

Economy – reduce the increase in energy expenditure and increase income from energy generation: Devon to be a net energy exporter by 2050 (Devon LAA outcome)

Devon (excluding Plymouth and Torbay) spent £572.5million on energy in 2004, 3.6% of total expenditure and a 31% increase since 1999. Nearly all this expenditure is on imports and has very little local positive economic impact. Energy prices have increased by at least 49% since 2004 and are projected to increase further. Energy costs in Devon are higher than elsewhere and rising energy costs are the biggest threat to UK business competitiveness, particularly in a local economy such as Devon's, which is dominated by small businesses.

Devon also has some of the best potential renewable energy resource, in terms of quantity, diversity and accessibility, of any sub region in England and probably any in Europe and has many opportunities to deploy low carbon solutions in buildings, new developments, waste management etc. The resource remains largely untapped and opportunities pass by despite there being a number of cutting edge companies in the area with the appropriate expertise.

Harnessing this potential energy resource has huge potential to drive sustainable economic growth in Devon through:

- design, manufacture, installation, and maintenance of zero and low carbon technologies;

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- income generation by developing fuel supply chains and increasing energy sales.

Health and well being – eliminate fuel poverty in Devon.

- To meet the Government's 2010 target to eradicate fuel poverty in all vulnerable households i.e. elderly people, disabled people, long-term sick people, households with young children
- To work towards the Government's 2016 target that no household in England should live in fuel poverty

More than 45,000 Devon households (ex. Plymouth and Torbay), over 15% of Devon households, live in fuel poverty (requiring more than 10% of household income to be spent on fuel to heat to an adequate standard of warmth), up by over 27,000 in the last three years due to domestic fuel price increases. Devon has a higher than average number of 'hard to heat' houses and poorly heated housing has significant health impacts, including increased winter mortality, particularly for older people who make up 57% of fuel poor households.

The challenge is to ensure that all households in Devon have access to comprehensive affordable warmth advice and support to minimise their fuel bills, maximise their available incomes and create a healthy and warm indoor environment and thereby increase the quality of life of individuals, but also strengthening communities.

Environmental – the need to reduce CO2 emissions**Indicator 1 - Carbon equivalent (tonnes) emitted from Devon, by sector**

Area	CO2 emissions (kt CO2) 2003						
	Industry	Agriculture	Domestic	Transport	Land Use Change	Total	%
East Devon	227	8	382	395	54	1,066	16.9%
Exeter	287	0	235	118	2	641	10.2%
Mid Devon	206	9	191	338	56	799	12.7%
North Devon	297	9	233	222	39	800	12.7%
South Hams	298	7	289	263	49	907	14.4%
Teignbridge	250	5	314	436	29	1,034	16.4%
Torridge	130	9	163	147	54	503	8.0%
West Devon	156	7	150	196	53	563	8.9%
Devon	1,850	55	1,956	2,114	338	6,313	
As %	29.3%	0.9%	31.0%	33.5%	5.3%		
South West	14,397	216	13,442	11,443	1475	40,972	
As %	35.1%	0.5%	32.8%	27.9%	3.6%		
Devon as % of SW	12.9%	25.5%	14.5%	18.5%	22.9%	15.4%	

Source: AEA Energy and Environment (formerly Netcen)

Note: For detailed information on data quality and methodology of these indicative estimates, please refer to the Netcen report – [UK Defra | e-Digest Environment Statistics, Global Atmosphere](#)

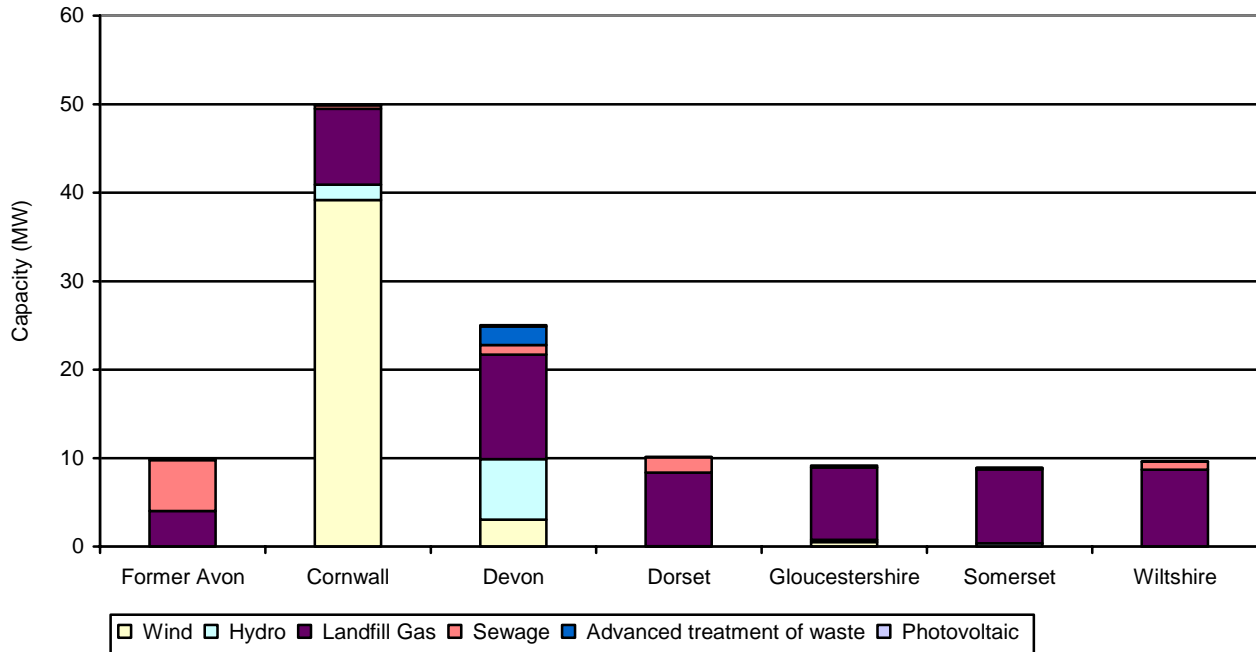
Economic – lack of competitiveness due to energy prices**Indicator 2 - £expenditure on energy**

Intermediate Purchases	1999	Energy as % of total	2004	Energy as % of total
	£million		£million	
Coal	4.6	0.1	8.1	0.1
Oil	19.4	0.3	29.3	0.3
Electricity	108.5	1.5	143.1	1.5
Gas	34.9	0.5	45.9	0.5
Petrol	28.6	0.4	40.4	0.4
Total	196	2.8	266.8	2.7
Total Intermediate Purchases	7044.6		9777.0	
Consumers' Expenditure				
Heating	104.6	2.5	131.1	2.2
Petrol	137.8	3.3	174.6	3.0
Total	242.4	5.7	305.7	5.2
Total Consumers' Expenditure	4219.5		5918.3	
Combined				
Intermediate	196.0		266.8	
Consumers' Expenditure	242.4		305.7	
Total	438.4		572.5	
Total				
Intermediate	7044.6		9777.0	
Consumers' Expenditure	4219.5		5918.3	
Total	11264.1	3.9	15695.3	3.6

Source: Devon Economic Model

Economic Productivity – opportunity for economic growth via the renewable energy sector

Indicator 3 - MW of installed Renewable Energy capacity (grid connected electricity and heat) in Devon



Source: Regen South West

Devon has increased its installed capacity to 25 MW and it has the largest number of renewable electricity projects with 55 installed. Devon’s capacity generates the equivalent electricity needs of 21,926 homes.

Devon has the potential to become the leading county in the South West in terms of the installed electricity capacity, due to several wind schemes that are currently going through the planning or appeals process. There are currently enough renewable energy schemes in Devon in the planning system to achieve the county’s target of 151 MW for renewable energy by 2010.

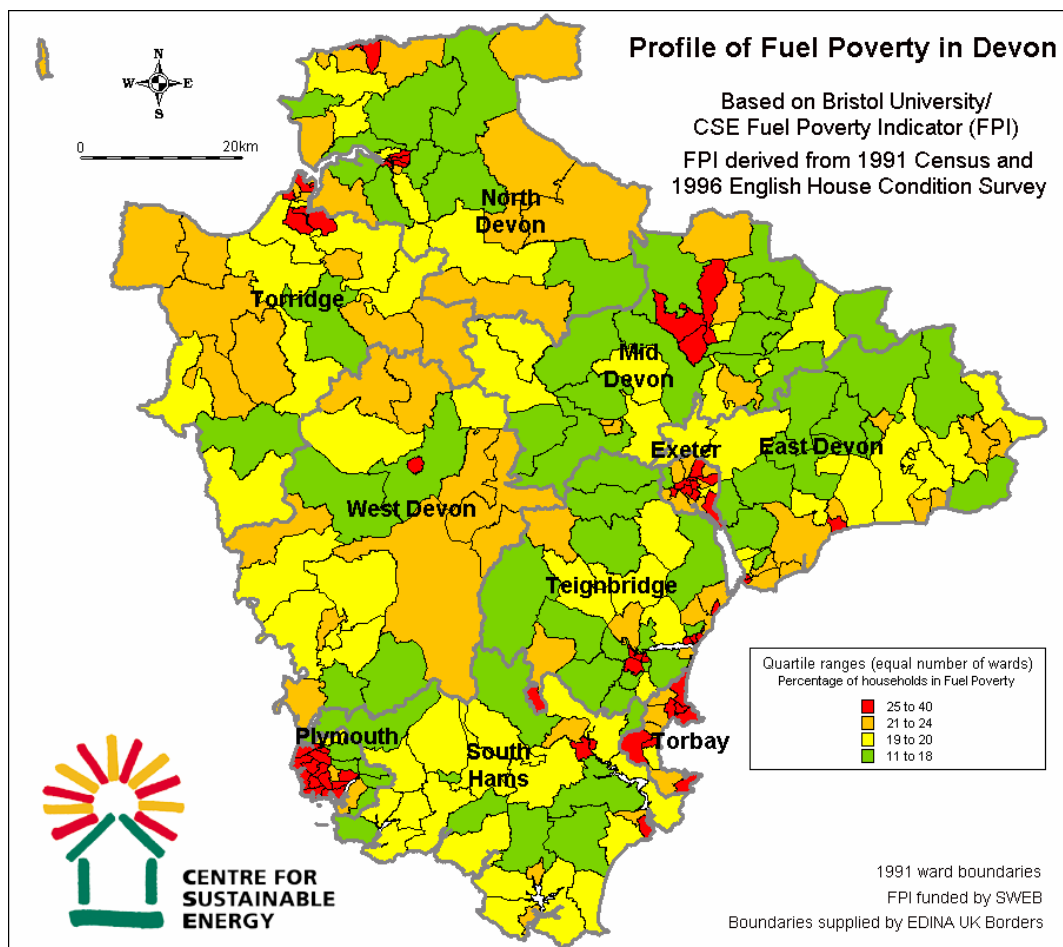
Devon also has the highest number of renewable heat projects – it has 120 projects, and the second highest heat capacity at 5.8 MW. Devon also has the highest number of solar thermal and biomass heat projects in the region.

Fuel Poverty

Indicator 4 - Numbers of people in Devon living in Fuel Poverty (>10% of household income needs to be spent on fuel cost to meet basic needs)

More than 45,000 Devon households (excluding Plymouth and Torbay), over 15% of Devon households, live in fuel poverty. This is up by over 27,000 households in the last three years due to domestic fuel price increases. The definition of fuel poverty is requiring more than 10% of household income to be spent on fuel to heat to an adequate standard of warmth.

Devon has a higher than average number of 'hard to heat' houses and poorly heated housing has significant health impacts, including increased winter mortality, particularly for older people who make up 57% of fuel poor households.



Source: Centre for Sustainable Energy

The above map illustrates that, in the Devon County Council area, fuel poverty is concentrated in the urban areas of Exeter, Ilfracombe, Bideford and Barnstaple (shown in red). There are also several pockets of fuel poverty in remote rural areas such as Westex North and Westex South in mid-Devon. Fuel poverty scores in the 'worst' quartile range from 26 to 40%.