



13 September 2007
www.wao.gov.uk

WALES **AUDIT** OFFICE
SWYDDFA **ARCHWILIO** CYMRU

Delivering the Home Energy Conservation Act in Wales



Delivering the Home Energy Conservation Act in Wales

I have prepared and published this report in accordance with the Public Audit (Wales) Act 2004. The Wales Audit Office study team that assisted me in preparing this report comprised Paul Dimblebee, Louise Fleet, Emma Giles, Helen Keatley, Stephen Lisle, Alastair McQuaid, Alan Morris, Matthew Mortlock, Andy Phillips, John Roberts, John Scrimgeour and John Weston.

Jeremy Colman
Auditor General for Wales
Wales Audit Office
2-4 Park Grove
Cardiff
CF10 3PA

The Auditor General appoints auditors to local government bodies in Wales, conducts and promotes value for money studies in the local government sector and inspects for compliance with best value requirements under the Wales Programme for Improvement.

He also examines and certifies the accounts of the Assembly and its sponsored and related public bodies, including NHS bodies in Wales. He also has the statutory power to report to the Assembly on the economy, efficiency and effectiveness with which those organisations have used, and may improve the use of, their resources in discharging their functions.

The Auditor General is totally independent of Government, the National Assembly and the other bodies that he audits and inspects. Furthermore, in order to protect the constitutional position of local government, he does not report to the Assembly specifically on local government work.

The Auditor General and his staff together comprise the Wales Audit Office. For further information about the Wales Audit Office please write to the Auditor General at the address above, telephone 029 2026 0260, e-mail: info@wao.gov.uk, or see web site <http://www.wao.gov.uk>
© Auditor General for Wales 2007

You may re-use this publication (not including logos) free of charge in any format or medium. You must re-use it accurately and not in a misleading context. The material must be acknowledged as Auditor General for Wales copyright and you must give the title of this publication.

Where we have identified any third party copyright material you will need to obtain permission from the copyright holders concerned before re-use.

**Report presented by the Auditor General for Wales to the
National Assembly on 13 September 2007**



	Summary	6
	Recommendations	10

1	There is evidence that the energy efficiency of Welsh housing has improved, but weaknesses in performance information make it difficult to assess the extent of progress	12
	The Welsh Assembly Government has set targets for all Welsh councils to improve domestic energy efficiency, although the wording of some councils' targets makes it difficult to objectively assess the extent to which they have been achieved	12
	All Welsh councils have reported improvements in domestic energy efficiency, although there are some discrepancies between the performance figures reported to us by the individual councils and those reported to the Assembly Government	13
	Inconsistencies in the methods used by councils to collate performance data make it impossible to draw reliable comparisons between the performance of different councils	15
	Reporting requirements do not account for trends in energy use within the home	17

2	Effective partnership working enables councils to access additional resources to support improvements in home energy efficiency, but taking full advantage of these opportunities requires dedicated staff time	18
	Councils can secure significant amounts of funding from external organisations for the benefit of their local populations	18
	Working with relevant centres of expertise can help councils to raise awareness and deliver advice across the whole housing sector	19
	Improving home energy efficiency is not solely a housing department issue and councils should do more to develop clear links to the delivery of other council services and priorities	20
	The human resource commitment to support the delivery of improvements in home energy efficiency varied between councils	22

3 **Achieving further improvements in domestic energy efficiency is likely to be more challenging in the future and will require a new and innovative approach** **24**

For some councils the 'quick wins' of improvements in the energy efficiency of their own housing stock, have already been achieved 24

Legislation, policy and funding has focused improvements in energy efficiency on fuel poor households and public sector housing, rather than the majority owner occupier sector 25

Owner occupiers need incentives to invest in energy saving measures 27

The generation of domestic energy from renewable sources remains largely under-developed 28

Appendices **29**

Appendix 1 - Policy Agreements 2004-2007 29

Appendix 2 - Reported performance figures 33

Appendix 3 - Funding available for home energy efficiency work 35

Appendix 4 - Allocation of HEES funding to local authorities 2006-2008 38

Appendix 5 - 'Good Practice' Case Studies 40

Appendix 6 - Study Methods 54

Summary

- 1 The 1995 Home Energy Conservation Act (HECA or the Act) provides a focus for council activity within the field of domestic energy efficiency¹. The Act requires councils, as ‘energy conservation authorities’ to:
 - submit an initial report identifying those ‘energy conservation measures the authority considers practicable, cost effective and likely to result in significant improvement in the energy efficiency of residential accommodation in its area’ (section 2 (2)); and
 - report (in accordance with a timetable later set down by the Secretary of State) progress made in implementing the measures set out in the initial report (sections 3 (1) and (2)).
- 2 The Act was proceeded by Circular 14/97 which defined:
 - energy efficiency as ‘using energy so that a greater proportion becomes useful heat, light or power’;
 - future requirements for reporting progress, stating that ‘generally this timetable will be in line with the submission of annual Housing Strategy and Operational Plans (HSOP) documents’²;
 - ‘energy efficiency measures’ as actions beyond physical changes to dwellings and including information, advice, education and promotion; and
 - ‘significant improvement’ as a 30 per cent improvement in domestic energy efficiency over the 10-year period from 1 April 1997.
- 3 Taken together, the Act and the accompanying guidance mean that significant improvement will have been achieved when 30 per cent more of the energy consumed by the residential stock becomes heat, light or power, as compared to the 1997 baseline position.
- 4 In the initial 1997 baseline reports to the then Secretary of State for Wales, the majority of Welsh councils accepted that there was the potential to achieve a 30 per cent improvement in domestic energy efficiency over the 10-year period. However, neither the Act nor the accompanying guidance placed a statutory duty on councils to achieve efficiency improvements, or to carry out those measures identified as likely to deliver significant improvements.
- 5 The requirements placed upon local government under the Act operate against the backdrop of:
 - relatively high levels of fuel poverty in Wales; and
 - increasing global temperatures and the need to reduce carbon dioxide (CO₂) emissions caused by domestic energy use, which currently constitutes around 30 per cent of the total energy used in the United Kingdom (UK) annually³.

¹ The Act commenced in Wales on 1 April 1997.

² To comply with a July 1998 decision by the Welsh Office, councils were required to submit their first annual HECA Progress Report in April 1999.

³ Department for Trade and Industry (DTI), Energy White Paper: Our energy Future - creating a low-carbon economy, 2003.



- 6 In 2004 all 22 councils entered into policy agreements with the Welsh Assembly Government (Assembly Government), which contained a series of improvement targets. Policy Agreement Prescription Measure 7(b) sets councils a specified percentage target for improving domestic energy efficiency for the period April 1997 to March 2007. While in all cases these targets were lower than the HECA 30 per cent target, councils did not agree a single universal improvement target (Appendix 1).
- 7 The period during which the aim of achieving a 30 per cent improvement in domestic energy efficiency was to be achieved expired at the end of March 2007. The Department for Environment, Farming and Rural Affairs is currently undertaking a review of the Act, and the Assembly Government has determined to await the recommendations of this review before setting councils objectives or targets for domestic energy efficiency beyond 2007. However, the Act still requires councils to provide the Assembly Government with performance reports.
- 8 In the light of these issues, and as part of its Regulatory Programme for 2006/2007, the Wales Audit Office examined the implementation of the Act in all 22 Welsh councils. The study was funded by the Wales Improvement Board as part of the Wales Programme for Improvement (WPI). The WPI is underpinned by section three of the Local Government Act (1999) which requires councils, as 'best value authorities', to 'secure continuous improvement in the way in which its functions are exercised, having regard to a combination of economy, efficiency and effectiveness'. This study complements earlier work we carried out examining the management of energy and water in non-domestic council properties.
- 9 We examined whether, in the light of the progress made so far, councils are likely to achieve further significant reductions in energy use and CO₂ levels across the housing sector beyond 2007. In so doing, we assessed the level of improvement achieved thus far and the robustness of both current delivery arrangements and councils' plans for achieving further progress.
- 10 The Wales Audit Office has provided individual councils with feedback regarding their performance to date and the adequacy of their management arrangements. Drawing together the evidence gathered from individual councils and other sources, this report identifies a number of common themes and provides a series of recommendations for improvement.
- 11 Overall, we found that all 22 councils have achieved some improvement in domestic energy efficiency, although weaknesses in performance information make it difficult to assess accurately the extent of progress and compare performance across councils. If the Assembly Government is to continue using targets as a lever for securing future improvement, a more robust approach to measuring trends in domestic energy consumption needs to be developed. This should be done in conjunction with those UK government departments that are currently developing a methodology for reporting carbon emissions at a local level⁴.

⁴ The Department for the Environment, Farming and Rural Affairs has commissioned a project to consider a number of methods for reporting carbon emissions. See <http://www.defra.gov.uk/environment/statistics/globalmos/galocalghg.htm>

12 Some councils were able to access significant funding from external sources, and there was also evidence of councils benefiting from partnership arrangements with the all-Wales Network of Energy Efficiency Advice Centres (EEACs). However, developing successful funding bids and establishing effective partnerships requires councils to commit sufficient staff, and the staffing resources allocated to the delivery of HECA varied widely across Wales. The majority of lead HECA officers considered that they had insufficient time to deliver HECA targets, and only one council had used their performance incentive grants specifically to fund the delivery of HECA objectives. Although most councils have carried out substantial work to improve the energy efficiency of public-sector homes, delivering improvements in the future will rely increasingly upon improving the energy efficiency of private-sector homes. This will be a significant challenge, which will require a more innovative, systematic and co-ordinated approach across a number of organisations.

There is evidence that the energy efficiency of Welsh housing has improved, but weaknesses in performance information make it difficult to assess the extent of progress

- 13** For the period 1997 to 2006, the majority of councils reported to the Assembly Government an improvement in domestic energy efficiency of at least six per cent. On the basis of figures councils provided directly to the Wales Audit Office, eight were likely to achieve their respective policy agreement targets by March 2007, but none will achieve the 30 per cent reduction proposed in Welsh Office Circular 14/97. However, only limited reliance can be placed upon the performance reported by councils. Different councils report performance in different ways, and performance measures are based on proxy measures of energy efficiency rather than reductions in household energy consumption.
- 14** The amount of energy efficiency work completed in households is one measure used as a proxy for energy efficiency improvement. However, there are intrinsic difficulties in capturing the energy efficiency work completed in the majority of the privately owned sector, which means that councils have a less well-developed understanding of the energy efficiency gains secured in this sector. Consequently, reported performance figures for the majority of councils reflect improvements in only a minority of the housing stock.



- 15** Councils address the difficulties of measuring energy efficiency activity within the public housing sector in a variety of ways, compounding problems in comparing performance across councils. Also, because of the way they are worded, it is difficult to objectively assess the extent to which the targets of some councils have been achieved.

Effective partnership working enables councils to access additional resources to support improvements in home energy efficiency, but taking full advantage of these opportunities requires dedicated staff time

- 16** Some councils were able to access substantial funds from external sources, predominantly the Assembly Government through the Home Energy Efficiency Scheme (HEES) and utility companies through the Energy Efficiency Commitment (EEC). Thirteen councils utilised the expertise and services of the relevant EEAC through a formalised Service Level Agreement (SLA), and there were other examples of councils setting up specific projects with their local EEAC.
- 17** Internal partnerships between council departments were generally underdeveloped, but lead HECA officers reported good internal working with some departments, and there was some evidence that developing affordable warmth action plans had stimulated cross-departmental communications. Establishing effective internal partnerships, and developing and funding projects requires

councils to make long-term staffing commitments, but there was a wide variation in the staffing resources councils dedicate to delivering HECA objectives.

Achieving further improvements in domestic energy efficiency is likely to be more challenging in the future, and will require a new and innovative approach

- 18** Councils have mostly focused funding and activity on the minority public housing and grant assisted sector, and in some cases councils have reported completing a significant proportion of the works required on their own properties. However the majority of homes in Wales are outside either of these sectors and, if further significant reductions in domestic energy use and carbon emissions are to be achieved, then the majority of owner-occupiers must be persuaded to take up energy efficiency measures.
- 19** Owner-occupier decisions regarding home improvements are influenced by a range of factors, most of which are outside the control of councils. Consequently, meeting this challenge requires a strategic and integrated approach from central and local government, and other relevant stakeholders.
- 20** Increased use of renewable energy sources has the potential to combat, in some measure, rising levels of CO₂⁵, and a small number of councils were exploring this potential. However, current projects are small scale. If councils are to contribute to meeting the Assembly Government microgeneration targets, then further developments are required within this area⁶.

⁵ Enterprise Minister, 23 March 2007 launch of microgeneration strategy.

⁶ Microgeneration is the small-scale production of energy for use in almost any type of building. The technologies involved, which include solar thermal, wind, hydro, biomass and ground heat, emit little or no CO₂. The Assembly Government Microgeneration Action Plan (2007) explicitly links microgeneration to improved domestic energy efficiency and reduced carbon emissions, sets targets for the uptake of microgeneration measures and identifies a role for local authorities (and other stakeholder groups) in achieving these targets.

Recommendations

i Councils have made progress in improving domestic energy efficiency within the fuel poor and public housing sectors. However, securing energy efficiency improvements within the private sector depends upon a range of factors, only some of which may be addressed by local government. Also, the targets for improving domestic energy efficiency agreed between the Assembly Government and councils only covered the period to 31 March 2007, although annual HECA reporting requirements will continue⁷. Taken together, these factors contribute to a sense of uncertainty amongst councils regarding their future role in improving domestic energy efficiency, particularly in respect of the private housing sector. We recommend that the Assembly Government:

- sets a clear direction, including appropriate targets, for councils, to encourage and support further improvements in domestic energy efficiency; and
- develops a lead role in encouraging councils to maximise opportunities to improve domestic energy efficiency within the private housing sector.

ii The wording of the domestic energy efficiency targets (as contained within the 2004-2007 policy agreements) for some councils made it difficult to objectively assess the extent to which they have been achieved. Historically, councils used a number of different methods to capture baseline levels of domestic energy efficiency, and such variation continues in their approach to monitoring annual progress in improving domestic energy efficiency. Under HECA, councils are required to report

annual progress to the Assembly Government, but some councils failed to meet this requirement. We also found some inconsistencies between the performance data reported to us by councils and that reported to the Assembly Government. If the Assembly Government chooses to agree with councils domestic energy efficiency targets for the period beyond March 2007, **we recommend that the Assembly Government:**

- **ensures that such targets are specific, measurable, achievable, realistic and time related;**
- **establishes a consistent and robust council level baseline assessment of energy efficiency;**
- **develops a reliable performance measurement framework to enable cross comparisons between councils, possibly by exploring the feasibility of using household consumption data provided by utility companies; and**
- **effectively monitors and reports performance against the targets.**

iii Councils adopt a variety of approaches to combat domestic energy consumption, with only some councils exploring such innovative ways of working as installing renewable energy sources in homes, raising awareness with schoolchildren or introducing a Council Tax Incentive Scheme. There is also likely to be some duplication of effort, as officers across a number of councils carry out similar roles and face similar challenges, such as identifying potential funding sources, developing bids, and delivering and monitoring successful bids. Seventeen of the

⁷ See section 13b of the Sustainable Energy Act (2003).



22 officers designated as having responsibility for HECA reported that they did not have sufficient time to effectively deliver HECA objectives. **We recommend that:**

- **councils should work in closer collaboration on domestic energy issues, facilitated by both the Welsh Local Government Association (WLGA) and the all-Wales HECA Forum;**
- **where councils identify insufficient resources as a significant impediment to the delivery of HECA objectives, they should consider the potential of establishing posts jointly funded with other councils, and make more use of the services provided by the relevant energy efficiency advice centres; and**
- **the Assembly Government identifies and disseminates good practice in delivering domestic energy efficiencies.**

Part 1 - There is evidence that the energy efficiency of Welsh housing has improved, but weaknesses in performance information make it difficult to assess the extent of progress

The Welsh Assembly Government has set targets for all Welsh councils to improve domestic energy efficiency, although the wording of some councils' targets makes it difficult to objectively assess the extent to which they have been achieved

- 1.1** The HECA required councils to identify those actions likely to lead to a 'significant improvement' in domestic energy efficiency. Welsh Office Circular 14/97 later defined significant improvement as a 30 per cent reduction in domestic energy use by March 2007, from a 1997 baseline. At that time, the majority of Welsh councils agreed that this reduction was potentially achievable.
- 1.2** In 2004 all 22 councils in Wales signed policy agreements with the Assembly Government. These agreements included targets relating to improvements in domestic energy efficiency ([Appendix 1](#)). Within the Policy Agreement Framework, councils had the opportunity to negotiate the wording of their targets. Assembly Government officials explained that the differences in the wording of councils' domestic energy targets reflected the fact that in late 2003, when the targets were agreed, some councils saw themselves as better placed than others to deliver further reductions in energy consumption.
- 1.3** In most councils, objectives or targets relating to improving energy efficiency are reflected in key corporate documents (such as the Corporate Plan, the Community Strategy and the Health, Social Care and Well Being Strategy). But only a few councils had developed more specific action plans to support the delivery of HECA objectives, even though domestic energy efficiency was one of eight mandated policy agreement targets for each council ([Case Study 1](#)).
- 1.4** The majority of councils (19) identified a council member who had responsibility for HECA objectives. However, this responsibility was generally part of a larger portfolio of responsibilities, and HECA objectives have to compete with what are often seen as more important housing priorities, such as homelessness and achieving the Welsh Housing Quality Standard by 2012.
- 1.5** The extent of monitoring and reporting domestic energy activity varied widely. Despite the inclusion of domestic energy efficiency targets within policy agreements, performance against these targets was not reported to scrutiny committees in five of the 19 councils who responded to the relevant survey question, and in two of the 19 councils performance in this area was not reported to cabinet (again three councils failed to respond to the relevant survey question).



- 1.6** The wording of the policy agreement targets for some councils made it difficult to objectively assess the extent to which they have been achieved:
- For 14 councils, the target has been expressed in terms of the council 'working towards' achieving a 12 per cent improvement in domestic energy efficiency by March 2007. In this context, it is not clear what level of progress would be accepted as 'good'.
 - Seven councils agreed to a more strongly-worded target of achieving a 12 or 14 per cent reduction in energy use and CO₂ emissions by 2007, from the 1997 baseline. The amount of CO₂ emitted per unit of energy consumed depends on the source of the fuel (ie, electricity, gas, oil etc). As a result, it does not follow that a certain percentage reduction in energy use is equivalent to the same reduction in CO₂ emissions⁸. The Assembly Government told us that it expected these councils to achieve the stated reduction in both energy use and CO₂ emissions.
 - The remaining council agreed with the Assembly Government that it would work to 'exceed' the 12 per cent national objective. Again it is not clear what level of performance would be acceptable as 'good' progress.

All Welsh councils have reported improvements in domestic energy efficiency, although there are some discrepancies between the performance figures reported to us by the individual councils and those reported to the Assembly Government

- 1.7** Councils submitted figures to us which show that, on average, they had achieved a 9.6 per cent reduction in energy consumption between the 1997 baseline year and the end of March 2006 (Appendix 2). But there was a substantial variation in the performance reported by individual councils, ranging from a 6.3 per cent reduction to a 14.3 per cent reduction⁹.
- 1.8** On the basis of these figures, Blaenau Gwent, Cardiff, Ceredigion and Swansea councils had, by the end of March 2006, already achieved the reduction in domestic energy consumption referred to as part of their policy agreement. Flintshire, Powys, Vale of Glamorgan and Wrexham councils were also likely to achieve their targets by the end of March 2007, assuming that progress continues at the same rate as for the year ending March 2006¹⁰. None of the councils are close to achieving the original aim of a 30 per cent reduction in energy consumption.

⁸ Over the nine years from March 1997, one council reported an improvement in energy efficiency of 6.39 per cent, and a reduction in CO₂ emissions of 5.87 per cent.

⁹ The Wales Audit Office did not validate the HECA performance figures councils provided as part of this study.

¹⁰ Assuming the same rate of progress as for the year ending March 2006, Caerphilly will secure approximately an 11.6 per cent improvement in domestic energy efficiency, and thus come close to achieving their 12 per cent policy agreement target.

1.9 The figures reported to us by councils are, in most cases, different to the figures reported to the Assembly Government's Housing Directorate ([Appendix 2](#)). Officials at the Housing Directorate suggested that some of the differences arise because its figures represent information reported to it annually by councils, as required under the HECA and the proceeding Welsh Office circular 14/97. If councils have not reported in any particular year then its progress in that year has not been included in the figures reported by the Housing Directorate¹¹ ([Figure 1](#)).

1.10 This would explain some of the discrepancies, such as those seen for Carmarthenshire, which last submitted a HECA Report for the period 1999/2000. However, it does not explain the differences for councils such as Bridgend, which has complied with all HECA reporting requirements.

1.11 The Assembly Government wrote each year to councils reminding them of their obligations under the Home Energy Conservation Act. However, the Act does not make specific provisions for those councils who fail to meet their statutory reporting requirements. The Assembly Government is reviewing the operation of HECA, including the compliance aspects.

1.12 The annual rate of reduction in energy consumption reported by councils has accelerated since the introduction of the policy agreements. In 2003/2004 the average reduction was one per cent, compared with 1.23 per cent in 2004/2005 and 1.71 per cent in 2005/2006¹². This trend suggests that the policy agreement targets may have

Figure 1: Compliance by councils with statutory requirements to submit annual HECA progress reports (1997-2006)

Period covered	Number of reports received (of 22)
1/4/97 - 31/3/00	16 (1)
1/4/00 - 31/3/01	18
1/4/01 - 31/3/02	20
1/4/02 - 31/4/03	20
1/4/03 - 31/4/04	15
1/4/04 - 31/4/05	19
1/4/05 - 31/4/06	18

Note (1)
The poor quality of reports submitted in the first three years of the HECA reporting cycle led the Assembly Government to aggregate data for this period.

Source: HECA progress report to the National Assembly Social Justice and Regeneration Committee, 18 January 2007

contributed to a renewed sense of focus and additional activity by councils. However, there are other possible contributory factors, for example:

- when setting the policy agreement targets, it was assumed that the increasing funds available through the HEES and the EEC would help to accelerate progress ([Appendix 1](#));
- the introduction of the Welsh Housing Quality Standard (WHQs), in May 2002, has stimulated additional investment in improving social housing, much of which has energy efficiency-related benefits; and

¹¹ The Assembly Government reported that Carmarthenshire, Anglesey, Monmouthshire and Merthyr Tydfil councils have not complied in full with their HECA reporting requirements.

¹² HECA Progress Report to the National Assembly Social Justice and Regeneration Committee, 18 January 2007.



- it is possible that, in response to the Policy Agreement Target, councils have gone to greater lengths to collate information on energy efficiency improvements across the housing stock.

Inconsistencies in the methods used by councils to collate performance data make it impossible to draw reliable comparisons between the performance of different councils

- 1.13** Council measures of reductions in energy consumption or CO₂ emissions are estimates, based on assumed reductions resulting from a range of activities to modify the fabric and services (heating and lighting) of individual homes. In August 2001 the Assembly Government issued all councils with a HECA software package and associated guidance, which standardised the energy efficiency gains attributable to particular measures, such as the installation of improved loft insulation. The guidance identifies the data sources councils might wish to use when gathering data on energy efficiency work completed within the public and private sectors. As such it does not set out a mandatory approach to collecting data for HECA progress reports. Nor does it adequately address the potential unreliability of data collected from sources such as installers and retailers.
- 1.14** Ten councils considered that there were energy efficiency improvements which could not be reported because they were not measured by the HECA software. For example, the software does not enable councils to report reductions in energy use accruing from the installation of external wall cladding or the installation of renewable energy sources. Although councils could have requested further guidance from the Assembly Government on including such work as non-standard items, none have so far chosen to do so. One council stated that when the design of the software prevented them from recording certain measures, they input substitute measures which they deemed likely to achieve a similar reduction in energy use.
- 1.15** Within the framework provided by the guidance, there remain significant inconsistencies in the ways in which councils collate their source data on the numbers of energy efficiency measures installed in a particular period. These inconsistencies relate particularly to privately-owned homes (which comprised in 2004, 74 per cent of all Welsh homes¹³) and, to a lesser extent, properties owned by Registered Social Landlords (RSLs). All councils expressed confidence in their ability to identify and record energy efficiency works carried out on their own housing stock.
- 1.16** Within the private housing sector, councils require the notification of measures such as the installation of double glazing and cavity wall insulation¹⁴. However, councils were uncertain about the extent to which contractors and members of the public knew of or complied with these requirements.

¹³ Assembly Government, Welsh Housing Statistics, 2005.

¹⁴ Building Regulations (2000), as amended. The Assembly Government is exploring the transfer of functions regarding building regulations. The Assembly Government sees such devolution of powers as important in securing improvements in the energy efficiency of new builds and home extensions.

Moreover, councils do not require the notification of other works which are likely to contribute to reductions in energy consumption, such as the installation of loft insulation, draughtproofing or the use of low-energy light bulbs.

1.17 In an attempt to estimate the level of activity in the private sector, councils have adopted a range of different and often multiple approaches, but there is little overall consistency and some risk of double counting. Examples of the data collection methods used include:

- some councils have generally excluded the majority of the private housing sector in their calculations, either focusing solely on improvements reported for their own council-owned stock, or incorporating known actual measures in the RSL or private sectors, such as measures undertaken with grant assistance ([Appendix 3](#)) or notified to their building control departments;
- extrapolation from national data sets, such as the Building Research Establishment's (2001) Domestic Energy Fact File, to estimate the extent of work likely to have been carried out within the private housing sector;
- making direct contact with local contractors and/or trade associations;
- contacting local Do-it-Yourself (DIY) retailers to obtain information, for example on the number of energy-efficient condensing boilers purchased; and

- issuing questionnaires to private householders.

1.18 In 2004, Cardiff Council conducted an assessment of energy works carried out in a sample of private homes. By comparing this data with data from an earlier 1989/1990 survey of private-sector housing, the council estimated the range and extent of energy efficiency works likely to have been carried out by owner-occupiers over the period. Based on this estimated level of energy efficiency works, the Council reported an additional six per cent improvement in energy efficiency. This made up almost half of the total improvement reported to us by the Council for the period between 1997 and March 2006¹⁵.

1.19 These inconsistencies in annual reporting compound differences in the ways councils estimated their original baseline energy consumption in 1997. Sources of information used to generate this baseline data included:

- walk-through building condition surveys in a number of wards;
- telephone surveys;
- national statistics on typical levels of insulation and types of heating systems; and
- 1991 Census data.

¹⁵ The Assembly Government Housing Directorate has not incorporated this six per cent increase into their performance to date figures for this council, on the basis that they have yet to validate the figure. The Assembly Government does not routinely validate the reported HECA performance figures.



- 1.20** An individual council's success in improving domestic energy efficiency is measured as a percentage improvement against their 1997 baseline. Therefore, the higher the estimated baseline for energy consumption, the larger the apparent improvement resulting from any energy efficiency measures. Given this approach to measuring performance, differences in assessing baseline energy consumption make it impossible to accurately compare performance across councils.
- 1.21** Responding to similar concerns that requiring individual councils to assess and record relevant activities within their own authority is inaccurate, costly and inconsistent. The Department for the Environment, Farming and Rural Affairs (DEFRA) is developing a model for central reporting of emissions of CO₂ for local authority areas¹⁶.

Reporting requirements do not account for trends in energy use within the home

- 1.22** Performance figures are based on proxy measures of energy efficiency, and depend largely upon the estimated impacts of certain work to the fabric and services of domestic properties. Calculating these estimated impacts relies upon further assumptions relating to household temperatures and domestic occupancy rates, and fails to take into account the variety of ways in which householders might react to domestic energy efficiency improvements. For example, while additional loft insulation should reduce the energy needed to heat a home, this will only

occur if the householder responds by changing the way in which they use their heating¹⁷.

- 1.23** Councils and the Assembly Government reported that utility companies were unwilling to provide consumption data. However, the UK Government Department for Trade and Industry collects meter reading data from across the UK, and the Assembly Government is planning to explore the strengths and weaknesses of this approach, and the extent to which it can be used to develop, to local authority level, a picture of household energy consumption within Wales.
- 1.24** Focusing predominantly upon the fabric and services of buildings also fails to take into account energy use by domestic appliances, which is steadily increasing¹⁸. Any measurement framework which largely excludes such an important source of consumption will not accurately represent domestic energy trends¹⁹.
- 1.25** Under the HECA, reductions in domestic energy consumption are measured against a 1997 baseline, and any housing built or demolished since then is excluded from HECA calculations. Between 1997 and March 2005, 68,821 new homes were built in Wales (representing approximately a six per cent increase since 1997 in the total number of properties) with 4,846 homes demolished or closed as unfit²⁰. While newbuild properties are now subject to more stringent building regulations as regards energy performance, these properties and the energy they consume are not considered within the remit of the Act.

¹⁶ <http://www.defra.gov.uk/environment/statistics/globalatmos/galocalghg.htm>

¹⁷ <http://www.defra.gov.uk/environment/energy/research/pdf/insulationmeasures-review.pdf>

¹⁸ The Energy Saving Trust (EST) found that the use of electricity by household domestic appliances in the UK doubled between 1972 and 2002. Consumption is anticipated to rise by a further 12 per cent by 2010 (EST, *Rise of the Machines*, 2006). Such trends result from increases in the total number of appliances bought and used by households, as well as an increase in the number of households (DTI, *Energy Consumption in the UK*, 2006).

¹⁹ While the HECA software provided by the Assembly Government is designed to capture the energy savings associated with the installation of more energy-efficient appliances (such as fridges), councils are likely to experience significant difficulties accurately measuring the number of such installations.

²⁰ Assembly Government, *Welsh Housing Statistics*, 2005.

Part 2 - Effective partnership working enables councils to access additional resources to support improvements in home energy efficiency, but taking full advantage of these opportunities requires dedicated staff time

Councils can secure significant amounts of funding from external organisations for the benefit of their local populations

- 2.1** External funding for domestic energy efficiency measures is available to councils and individual households from a number of sources ([Appendix 3](#)), including:
- the Assembly Government, through the HEES (as administered by the Eaga Partnership Ltd);
 - utility companies, through their obligations under the EEC Scheme;
 - the EST, through, for example, the Innovation Programme and a range of grant schemes aimed at developing community energy sources and installing solar photovoltaic energy; and
 - the UK Government DTI's Low Carbon Buildings Programme.
- 2.2** We asked the lead officers responsible for HECA to comment on how effective they thought their council had been in developing partnerships and joint working with a range of external organisations, including some of these funding bodies. Generally, councils expressed a positive view of relationships with

the main funding organisations operating within Wales: Eaga; the EST and the utility companies ([Figure 2](#)).

- 2.3** Utility companies may choose to meet their obligations under the EEC Scheme by engaging directly with householders or through partnership arrangements with organisations such as councils, RSLs, charities, retailers, installers and manufacturers. We asked councils to identify the EEC funding secured across their authority, but not all provided this data, and the figures that were provided probably related only to specific schemes that councils were aware of.
- 2.4** However, it is clear that some councils have attracted significant amounts of EEC funding. [Case Study 2](#) describes the Warm Wales Scheme undertaken in Wrexham and Neath Port Talbot, while examples of other initiatives supported by EEC funding in Gwynedd and Powys are described in [Case Studies 3 and 4](#) ([Appendix 5](#)).
- 2.5** Councils can also access significant funds to carry out energy efficiency works on their own properties from the Assembly Government's HEES Scheme ([Appendix 4](#)). For the financial year 2006/2007, 15 councils secured approximately £1.96 million from the scheme, although actual spend over the year amounted to only £886,315²¹. The average

²¹ A similar spending pattern can be seen for 2005/2006; 18 councils secured approximately £2.27 million from the scheme, although actual spend over the year amounted to only £1.24 million.



Figure 2: Councils' perceptions of effectiveness of working relationships with a range of external organisations

External partner	Very effective	Effective	Ineffective	Very ineffective	Not answered
EST	2	16	1	0	3
Utility suppliers	9	9	1	0	3
Eaga	9	10	0	1	2

Source: Wales Audit Office survey of 22 councils

grant equated to £130,333, although there were substantial variations, ranging from £25,000 awarded to Blaenau Gwent to £400,000 awarded to Neath Port Talbot²².

2.6 The Assembly Government reported that some councils were able to complete all those energy efficiency works (eligible for support under HEES), without spending all of their allocated grant. At regular points across the year, the Assembly Government monitors council spend, and unspent funds are redistributed within the HEES.

Working with relevant centres of expertise can help councils to raise awareness and deliver advice across the whole housing sector

2.7 In response to the 1992 Rio de Janeiro Earth Summit, and to provide householders with free advice on energy efficiency, the Energy Saving Trust²³ set up a UK Network of EEACs. There are currently three centres in Wales:

- the North Wales EEAC, serving Wrexham, Flintshire, Gwynedd, Isle of Anglesey, Conwy and Denbighshire;
- the Mid and South West Wales EEAC, serving Pembrokeshire, Powys, Carmarthenshire, Ceredigion and Swansea; and

²² Individual householders can also apply directly to the scheme for grant assistance to carry out energy efficiency works within their homes. Thus the HEES funding coming into any local authority will exceed the funds secured by the authority to carry out works on those properties they own. For example, in 2005/2006 total HEES grants awarded in Blaenau Gwent stood at £121,762, of which £7,602 was reported as work completed on council-owned properties (Assembly Government, The HEES (Wales) Annual Report, 2006 and Assembly Government Housing Directorate). However, this figure must be considered with caution, as council tenants may apply to the scheme directly, making it likely that the latter figure underestimates the value of work carried out under the scheme within council properties.

²³ The EST is a non-profit organisation funded by the Government and private business to achieve the sustainable use of energy and to cut CO₂ emissions.

- the South East Wales Energy Agency, serving Cardiff, Merthyr Tydfil, Torfaen, Neath Port Talbot, Newport, Monmouth, Bridgend, Vale of Glamorgan, Blaenau Gwent, Caerphilly and Rhondda Cynon Taff²⁴.

2.8 The core funding from the EST enables the EEAC to provide residents in all 22 councils with access to a free phone helpline²⁵ and advice on energy efficiency grants, fuel debt, renewable energy and finding competitively-priced tariffs.

Thirteen²⁶ of the 22 councils had also established separate SLAs with the EEAC to provide additional services, such as:

- marketing and promotional activity (eg, assisting councils to develop awareness campaigns);
- training for selected groups of 'front-line' council staff (eg, call centre and benefits staff);
- delivering presentations to local groups, such as Age Concern;
- producing homeowner reports that identify the most cost-effective means of improving the energy efficiency of a property; and
- collating performance data on the number of energy efficiency works carried out across a council's housing stock.

2.9 **Case Studies 5 and 6** at **Appendix 3** describe two projects undertaken by the South East Wales Energy Agency in conjunction with councils.

2.10 Residents in the City and County of Swansea also have the opportunity to access energy efficiency advice from the council's own Energy Advice Centre. This centre is managed by the council's full-time HECA Officer with support from two further full-time staff. The remit of the centre is to:

- deal with the public, covering general energy-related topics and more in-depth detail of new technologies;
- carry out research and development;
- conduct awareness-raising training for other council staff; and
- develop effective working relationships with both internal council partners and outside organisations.

Improving home energy efficiency is not solely a housing department issue and councils should do more to develop clear links to the delivery of other council services and priorities

2.11 In the majority of councils, reporting lines for delivery of the HECA objectives generally follow a route from the officer with lead responsibility through to the Head of Housing and above. But in some councils there was evidence of reporting through planning, technical services, community services, property services and asset management.

²⁴ In December 2007 the EST will launch the Sustainable Energy Network in Wales. While the EST currently funds the EEACs to advise consumers on domestic energy efficiency, the Sustainable Energy Network will have an expanded remit - providing advice on renewables, low carbon transport options and energy efficiency to consumers, Small and Medium sized Enterprises and community groups. Through the EST, DEFRA and the Assembly Government will jointly fund the network. The EST reports that contract arrangements will be finalised by October 2007, and thus the mechanism for delivering these enhanced services remains unclear.

²⁵ While the free phone helpline is available across Wales, the relevant energy advice centres do not actively promote the helpline in those councils not also covered by a SLA.

²⁶ Councils currently operating a SLA with the relevant EEAC are: Ceredigion; Pembrokeshire; Powys; Newport; Monmouthshire; Bridgend; Vale of Glamorgan; Rhondda Cynon Taff; Merthyr Tydfil; Wrexham; Flintshire; Gwynedd and Denbighshire.



Figure 3: Councils' perceptions of the effectiveness of joint working between the HECA Function and a range of internal partners

Department	Very effective	Effective	Ineffective	Very ineffective	Not answered
Health/Social Services	4	12	2	1	3
Building Control	0	12	6	0	4
Planning	0	7	11	1	3
Wider Housing Maintenance Functions	5	11	2	0	4
Education	0	10	5	2	5
Publicity/Marketing Department	1	12	4	0	5
Environmental Health	2	10	4	1	5

Source: Wales Audit Office survey of 22 councils

2.12 Improving domestic energy efficiency contributes to a range of council objectives relating to the environment, poverty, and health and wellbeing, which are primarily the responsibility of departments other than Housing. We asked the lead officers responsible for HECA to rate how effective their council had been in developing partnerships and joint working between the main HECA Function and wider council activities (Figure 3). There was wide variation in the perceived effectiveness of joint working with internal partners. Overall, the least successful internal working arrangements were reported with Planning, and the most successful with Housing, and Health and Social Services, in the latter case possibly reflecting the link between keeping warm and

keeping well. Councils also reported some examples of effective cross-departmental working, such as Building Control providing Housing with data on installations and HECA officers working with staff advising on benefits.

2.13 Some councils reported that, in developing affordable warmth action plans (Paragraph 3.7), they had improved internal communications. However, councils provided relatively few practical examples of specific interdepartmental initiatives designed to deliver improvements in domestic energy efficiency (Case Study 7). This was in contrast to the number of examples that councils reported of joint working with external organisations.

The human resource commitment to support the delivery of improvements in home energy efficiency varied between councils

2.14 All councils were able to identify an officer who had been given lead operational responsibility for the delivery of the HECA objectives. These officers were frequently, but not exclusively, based within the Housing Department, and were often fulfilling multiple roles, as is reflected in their titles, which included Senior Renewal Officer, Energy Manager and Housing Strategy Officer. As a result, with the exception of four councils, lead HECA officers were not working exclusively on the delivery of HECA objectives (Figure 4).

2.15 Among their responsibilities, lead HECA officers included:

- providing the public with domestic energy advice;
- collating and preparing data for annual HECA progress reports to the Assembly Government;
- internally reviewing progress against HECA and policy agreement targets;
- identifying and securing external funding;
- promoting available grant schemes for those eligible for financial assistance with domestic energy efficiency works; and
- networking with other HECA officers through, for example, regional and national HECA fora.

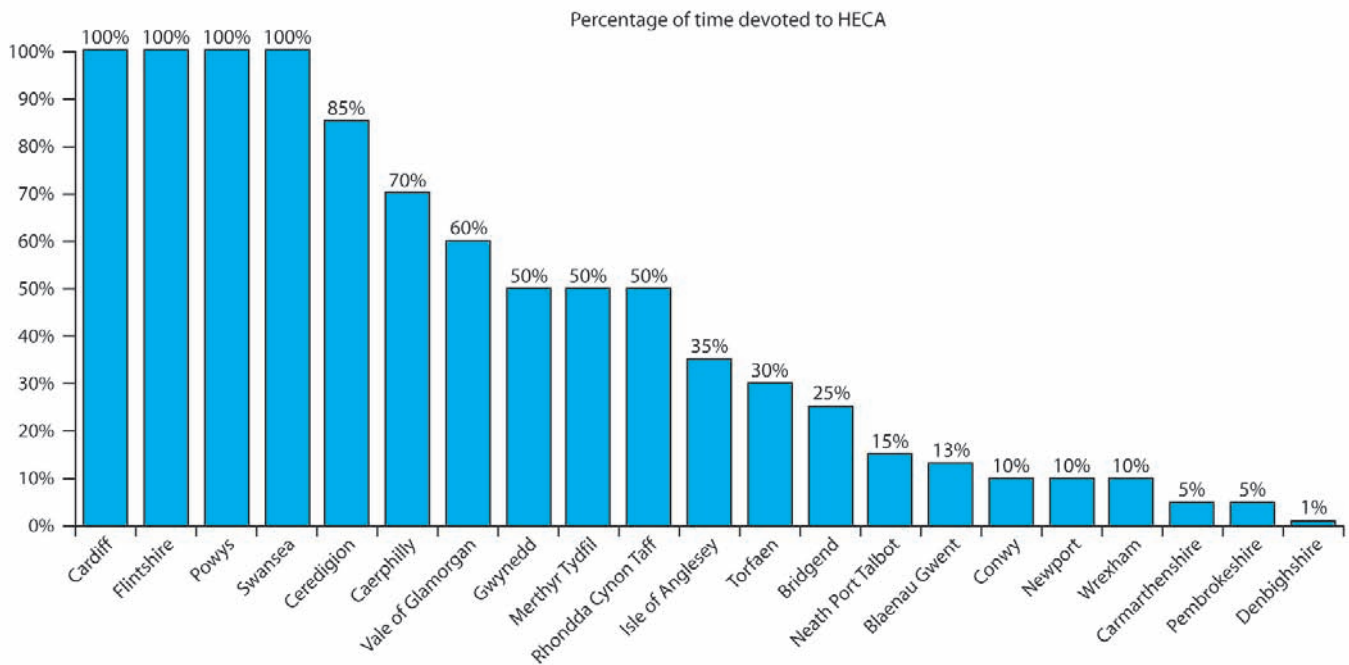
2.16 We asked lead HECA officers to rate the relative importance of technical energy management experience, marketing skills, networking skills and housing knowledge in carrying out their HECA responsibilities. Networking was the most highly rated skill, perhaps reflecting the contribution that effective partnership working (internally and externally) can make to the delivery of HECA objectives.

2.17 Some councils make available additional staff to support the lead HECA officer. For example, the Swansea Energy Advice Centre not only employs a full-time lead HECA officer but also two further full time members of staff, and in Wrexham the lead HECA officer is supported by a full time housing energy efficiency officer. Caerphilly Council funds both a lead HECA officer, who devotes around 70 per cent of their time to HECA, and a full time in-house housing energy advisor, who performs day to day activities such as publicity, mailshots, door to door enquiries and manages inquiries from the public. In Flintshire the full-time HECA officer receives additional support from the Energy Unit manager who spends around 10 per cent of their time delivering domestic energy efficiency projects.

2.18 It is difficult to conclude whether employing staff to work full-time on the delivery of HECA objectives produces better results. However, based on the figures reported to us, four of the eight councils that had met, or were on course to meet, their policy agreement targets by the end of March 2007 (that is, Cardiff, Swansea, Flintshire and Powys) employ a full-time HECA officer.



Figure 4: Percentage of time the lead HECA officer spends delivering HECA objectives



Note

The lead HECA officer at Monmouthshire reported spending between 10 and 20 per cent of their time delivering HECA objectives

Source: Wales Audit Office survey of 22 councils

2.19 The activities central to the successful delivery of HECA objectives require a significant time commitment, whether by a single individual or across a range of individuals and council departments. Fifteen of the lead HECA officers considered that they had insufficient time available to fulfil their HECA duties effectively. Most were able to identify opportunities or projects that they would like to be able to pursue but did not have the time or resources to do so. These projects included raising awareness, developing partnerships, and researching and developing best practice.

2.20 Powys County Council told us that they had appointed a full time HECA officer to a new post in March 2005, originally on a three-year contract. Funding for the post, equivalent to £40,000 per annum, has been made available from the council's performance incentive grant provided by the Assembly Government to help councils meet their policy agreement targets (Appendix 1)²⁷. However, officers in most councils expressed frustration that no additional resources had been forthcoming from their local performance incentive grant to support the delivery of HECA objectives²⁸.

²⁷ As non-hypothecated funds, councils are not obliged to spend performance incentive grants in areas covered by policy agreement targets.

²⁸ The Isle of Anglesey Council reported using Performance Incentive Grant funding of approximately £52,000 to improve the energy efficiency of council-owned public buildings.

Part 3 - Achieving further improvements in domestic energy efficiency is likely to be more challenging in the future and will require a new and innovative approach

For some councils the 'quick wins' of improvements in the energy efficiency of their own housing stock, have already been achieved

3.1 We asked councils to identify actual or anticipated expenditure on energy efficiency measures over the period April 2004 to March 2007. Not all councils provided this information and we have been unable to carry out a robust analysis of council spending on domestic energy efficiency measures across Wales. Nevertheless, there was evidence that some councils were investing significantly in energy efficiency measures within council-owned homes. One council reported a three-year programme to install central heating, replace windows and doors and overclad properties amounting to £23.5 million. Another reported a Housing Budget of £11.2 million to carry out energy efficiency-related works within council-owned properties. The impetus for such work has come from a number of sources, including the need to meet the WHQS by 2012, and consultations with council tenants which had identified the need to improve windows and heating systems as a priority.

3.2 The level of investment seen in some councils means that they have already made significant improvements to the energy efficiency of their own housing stock. The WHQS requires councils to ensure that 'all dwellings must be capable of being adequately heated at an affordable cost'. In support of this standard, the Assembly Government has developed a series of mandatory minimum requirements relating to domestic energy efficiency. For example, a property of between 81 to 90 square metres must achieve a Standard Assessment Procedure (SAP) Rating of 66. By the end of 2006, council-owned properties in Caerphilly Council had an average SAP Rating of 69²⁹. Wrexham Council also reported that extensive energy efficiency works carried out in the public sector between 1993 and 1997 meant that the potential for cost-effective energy efficiency improvements to the council's own stock was limited.

3.3 Consequently, achieving energy efficiency gains within council-owned properties will become more difficult, as they must now address the problems experienced by what are described as 'hard-to-heat' homes, such as those with solid walls³⁰. As a result, future significant energy efficiency gains must come from improving the energy efficiency of homes in the private sector. However, councils are unable to exert as much influence over privately-owned housing.

²⁹ SAP is the Standard Assessment Procedure for Energy Efficiency of Dwellings.

³⁰ For example, Ceredigion County Council estimates that over 40 per cent of homes in the area have solid walls. Moreover, only 26 per cent of properties within the area are connected to mains gas, thus ruling out the potential to improve energy efficiency through the installation of gas central heating.



Legislation, policy and funding has focused improvements in energy efficiency on fuel poor households and public sector housing, rather than the majority owner occupier sector

- 3.4** The most recent data available indicates that in 1997/1998 360,000 (31 per cent) of Welsh households lived in fuel poverty, of which 72,000 (six per cent) suffered severe fuel poverty³¹. The equivalent figures for England were 22 per cent and three per cent respectively. In 1998 proportion of households experiencing fuel poverty was lowest (24 per cent) in the owner-occupier sector and highest (51 per cent) in the council sector³².
- 3.5** People living in fuel-poor households experience a range of allied difficulties: those living in cold, damp and mouldy houses are at an increased risk of respiratory illness, high blood pressure, stroke, worsening arthritis, accidents at home, social isolation and impaired mental health. Fuel poverty is also associated with poor education and nutrition.
- 3.6** The Assembly Government has sought to combat fuel poverty and the multiple forms of deprivation with which it is associated in a number of ways. On a strategic level:

- Plan for Wales (2001) set an interim target of moving 38,000 vulnerable households out of poverty by March 2004, a target later extended to 95,000 households by 2007;
- National Housing Strategy (2001) sets out the Assembly Government's commitment to eradicate fuel poverty in the most vulnerable households by 2010;
- Fuel Poverty Commitment for Wales (2003) obliges the Assembly Government to eradicate fuel poverty in vulnerable households by 2010, in non-vulnerable groups in social housing by 2012 and among all households by 2018³³; and
- Energy Saving Wales (2004) restates the link between achieving energy efficiencies and reducing fuel poverty.

- 3.7** In 2004 the Assembly Government asked all councils in Wales to develop an Affordable Warmth Action Plan within two years³⁴. The Assembly Government provided the charity National Energy Action with £80,000 to support individual councils in meeting this timetable. National Energy Action's latest progress update to the Assembly Government shows that 15 councils had completed and circulated a draft Action Plan by 31 March 2007.

³¹ A household is said to be in fuel poverty if it needs to spend more than 10 per cent of its income on fuel to maintain a satisfactory Heating Regime (usually 21 degrees for the main living area, and 18 degrees for other occupied rooms).

³² Assembly Government, Fuel Poverty in Wales, 2005. These statistics are based upon data covering the period 1996-1999. Domestic gas and electricity bills have risen since 2001 and 2003 respectively (DTI, Quarterly Energy Prices, March, 2007), and consequently these figures are likely to underestimate current levels of fuel poverty in Wales.

³³ Warm Homes and Energy Conservation Act (which commenced in Wales in April 2002) required the Assembly Government to adopt a Fuel Poverty Commitment within one year of the Act commencing in Wales.

³⁴ All-Wales Energy Efficiency Partnerships, Energy Policy Guidance Notes, 2004.

- 3.8** As part of working with National Energy Action, councils were expected to appoint an Affordable Warmth Champion, recruit a steering group and run at least one consultation workshop. There was general agreement that this process raised both officers' and members' awareness of the domestic energy efficiency agenda.
- 3.9** However, some council members have questioned the legitimacy of direct council funding of private-sector home energy efficiency improvements, particularly in the light of other environmental priorities such as waste disposal, recycling, landfill areas and deteriorating highways. Members also reported that within housing departments global concerns such as addressing climate change compete for priority with local issues such as WHQS, stock transfer and homelessness, adding to the potential difficulties councils might experience in generating support for large-scale financial intervention in the private housing sector.
- 3.10** In 1998 council owned housing had the highest proportion of those living in fuel poverty. The WHQS, which the Assembly Government expects all social housing to meet by 2012, is one mechanism for reducing fuel poverty within public-sector housing.
- 3.11** The WHQS has seven requirements, one of which, as previously explained in Paragraph 3.2, relates to the annual energy consumption for space and water heating, as measured through the SAP rating. To comply with the WHQS, homes must achieve a minimum SAP energy rating³⁵. This varies according to the floor area of the property. For example, a dwelling with a floor area between 81 and 90 square metres must achieve a minimum SAP Rating of 66.
- 3.12** Grants for carrying out domestic energy efficiency works are also aimed at those groups most likely to experience fuel poverty. Currently there are two main funding streams for such work: the Assembly Government funded Home Energy Efficiency Scheme (HEES and HEES Plus) and funding provided by utility companies seeking to meet their Energy Efficiency Commitment (EEC) targets (Appendix 4). Both HEES and HEES Plus are available only to householders claiming specified social security benefits. Under EEC, 50 per cent of the energy savings achieved must be within 'priority' groups (ie, those customers receiving benefits or tax credits).
- 3.13** Given the problems experienced by people living in fuel poverty, it is understandable that policy and funding is focussed upon those households. However, the EST has recognised that focusing upon fuel poor households has led to a limited uptake of energy efficiency measures by those outside the social housing sector who are not eligible for grant assistance³⁶. The EST considers that unless demand for energy efficiency measures can be stimulated within the majority private housing sector, the UK will not meet its national target of reducing carbon emissions by 60 per cent by 2050³⁷.
- 3.14** Emphasising the relationship between energy efficiency and fuel poverty also creates the risk that the role of energy efficiency measures in combating climate change receives insufficient political attention, particularly at a local level. Failing to make this link runs the additional risk that councils do not consider the ways in which homes might have to evolve to enable residents to adapt to climate change.

³⁵ These SAP ratings refer to SAP 1998. The Assembly Government is currently updating to use SAP 2005 (<http://projects.bre.co.uk/sap2005>). This may lead the numeric value of the required SAP rating to change, but will not reflect a change in the standard, as the Assembly Government will quote the current target in terms of the 2005 methodology.

³⁶ Energy Saving Trust, *Changing climate, changing behaviour*, 2005.

³⁷ DTI, *Energy White Paper: Our energy Future-creating a low carbon economy*, 2003.



Owner occupiers need incentives to invest in energy saving measures

- 3.15** Decisions regarding energy efficiency improvements in the majority owner occupied sector are often outside the direct control of councils. The EST recommends council tax incentive schemes as the most appropriate way that councils can influence decisions made by private households. Under such schemes, home owners receive a council tax rebate if they install certain specified energy efficiency measures.
- 3.16** In England such schemes currently operate in a number of councils including Fenland, Braintree and South Cambridgeshire councils. Conwy County Borough Council ([Case Study 8](#)) and Blaenau Gwent County Borough Council operate this scheme in Wales.
- 3.17** While council tax incentive schemes can be implemented at a local level, offering incentives through other taxes, such as Standard Duty Land Tax (SDLT - a UK Government tax levied on the purchase of shares and property) or income tax, are decisions for the UK Government. Some national governments (for example, France) and some American states (for example, Arizona and New York) have reduced income tax for those householders completing energy efficiency works, such as retrofit of insulation. In July 2004, France's Climate Change Plan outlined income tax credits of between 15 and 40 per cent to encourage the uptake of sustainable energy measures.
- 3.18** The EST has proposed an Incentive Scheme linked to SDLT. Under a SDLT Incentive Scheme, homebuyers would receive a tax rebate on completing a series of specified home energy improvement works. The EST also assessed the feasibility and likely impacts of introducing mortgage interest relief for sustainable homes, the phasing out of reduced VAT on domestic fuel, and inheritance tax rebates for the installation of energy efficiency measures.
- 3.19** There are factors beyond the fiscal which might encourage homeowners to carry out energy efficiency improvements. These include seeking to increase house value and saleability, and general awareness of global climate change. The UK Government's introduction of Home Information Packs may also act as a driver within this area. From August 2007, all homeowners selling properties of four bedrooms or more will be required, prior to sale, to prepare a Home Information Pack which should include an Energy Performance Certificate.
- 3.20** We did not explore those factors which may discourage homeowners from carrying out domestic energy efficiency works. However, these might include: high installation costs; perceived unreliability of contractors; poor understanding of available technology and its associated benefits; and the perceived absence of credible information.
- 3.21** Local government is well placed to help overcome some of these barriers. For example, EEACs have the expertise necessary to advise householders on the most feasible and cost-effective approach to reducing their domestic energy consumption. Also, although most councils will have

insufficient resources to run large-scale pilot projects to identify the most effective way of generating domestic energy from renewable sources, they should be able to ensure that the public has access to information that is credible and reliable. One approach to this might be for councils to endorse information and advice provided by the energy efficiency centres. Some councils are already doing this.

3.24 Wrexham County Borough Council and Eaga are planning to carry out feasibility studies on using renewable energy sources within individual homes ([Case Studies 7, 8 and 12](#)). Despite its potential, the relative impacts of differing sources of renewable energy upon energy consumption, fuel bills and carbon emissions, and their feasibility of their large-scale use across the housing sector, has not yet been explored in Wales.

The generation of domestic energy from renewable sources remains largely under-developed

3.22 Increased domestic energy efficiency is only one of a number of ways to combat climate change. A 2005 study commissioned by the DTI from the EST suggested that by 2050 microgeneration could provide 30 to 40 per cent of the UK's electricity needs and help reduce annual household carbon emissions by 15 per cent. However, to achieve this 'units must be installed by consumers in their millions'³⁸.

3.23 A number of Welsh councils, in some cases with financial assistance from the HEES, have developed specific initiatives to encourage the use of renewable energy sources at the level of individual homes ([Case Studies 9 to 11](#)) However, these developments have been on a relatively small scale.

³⁸ The Guardian, Micro-winds of change, 14 February 2007.



Appendix 1 - Policy Agreements 2004-2007

Under the policy agreement framework, councils commit to meet certain service improvement targets in return for a non-hypothecated Performance Incentive Grant (which amounts to a formula share of £30 million per annum). Each policy agreement covers 16 areas of council activity, eight of which are prescribed (although some exact targets are negotiated separately with each council) and eight of which are agreed between councils and the Assembly Government.

The Assembly Government made improving domestic energy efficiency a prescribed measure. The majority of councils (19) agreed a 12 per cent improvement in energy efficiency by 2007, as compared to the 1997 baseline. The 12 per cent figure reflected discussions between Assembly Government officials and the Welsh Local Government Association (WLGA), was based on five year projects from 2003 and took account of the following factors:

- previous funding levels had supported around a one per cent annual improvement in energy efficiency (average per annum energy efficiency improvement for 1997 to 2002 was 0.78 per cent, average energy efficiency improvement for 2001/2002 alone was 0.98 per cent);
- additional funding available through HEES and EEC would make a two per cent annual improvement in energy efficiency a reasonable expectation³⁹; and
- by 2003 Welsh councils had achieved an average improvement in domestic energy use of 3.2 per cent, as compared to the 1997 baseline.

Figure 5: Policy Agreement Target 7 (b) as agreed between councils and the Assembly Government

Council	Wording of Policy Agreement Target 7 (b)				
Blaenau Gwent	We are working towards achieving the national objective of a 12 per cent improvement in domestic energy efficiency by 2007, through joint working with the Assembly Government and others.				
Bridgend	We will improve the energy efficiency of the private and public-sector housing by the end of the agreement. Our targets for this are as follows:				
		Baseline	2004/2005	2005/2006	2006/2007
	Percentage improvement	3%	6%	10%	12%

³⁹ HEES Budget increased from £14.72 million in 2004/2005 to £19.62 million in 2006/2007. EEC 2 spending in Wales for 2005/2008 is double the previous EEC 1 Programme (Appendix 4), and will equate to approximately £10 million over the three-year period.

Council	Wording of Policy Agreement Target 7 (b)				
Caerphilly	We will improve the energy efficiency of the private and public-sector housing by the end of the agreement. Our targets for this are as follows:				
		Baseline	2004/2005	2005/2006	2006/2007
	Percentage improvement	1,976,776 MWh	8-9%	10%	12%
Cardiff	Over the period 1997-2007 we will reduce energy use and CO ₂ emissions in the housing stock by 12 per cent.				
Carmarthenshire	We are working towards achieving the national objective of a 12 per cent improvement from the HECA baseline position of 1997 in domestic energy efficiency by 2007, through joint working with the Assembly Government and others.				
Ceredigion	We are working towards achieving the national objective of a 12 per cent improvement from the HECA baseline position of 1997 in domestic energy efficiency by 2007, through joint working with the Assembly Government and others.				
Conwy	We are working towards achieving the national objective of a 12 per cent improvement from the HECA baseline position of 1997 in domestic energy efficiency by 2007, through joint working with the Assembly Government and others.				
Denbighshire	We are working towards achieving the national objective of a 12 per cent improvement in domestic energy efficiency by 2007, through joint working with the Assembly Government and others.				
Flintshire	We will achieve a percentage reduction in energy use and CO ₂ emissions in the housing stock. Our targets for this are as follows:				
		Baseline	2004/2005	2005/2006	2006/2007
	% reduction in energy use and CO ₂ emissions	6360 cavity walls insulated 6301 lofts insulated Average SAP rating 53.22	14% improvement by 2006/2007		
Gwynedd	We are working towards achieving the national objective of a 12 per cent improvement in domestic energy efficiency by 2007, through joint working with the Assembly Government and others.				
Isle of Anglesey	We will achieve a percentage reduction in energy use and CO ₂ emissions in the housing stock by the end of the agreement. Our targets for this are as follows:				
		Baseline	2004/2005	2005/2006	2006/2007
	Percentage reduction	8%	10%	12%	14%



Council	Wording of Policy Agreement Target 7 (b)										
Merthyr Tydfil	<p>We will improve the energy efficiency of the private and public-sector housing by the end of the agreement. Our targets for this are as follows:</p> <table border="1"> <thead> <tr> <th></th> <th>Baseline</th> <th>2004/2005</th> <th>2005/2006</th> <th>2006/2007</th> </tr> </thead> <tbody> <tr> <td>Percentage improvement</td> <td>4.65</td> <td>8.65</td> <td>12.65</td> <td>16.65</td> </tr> </tbody> </table> <p>We are working to exceed the national objective of a 12 per cent improvement in domestic energy efficiency by 2007, through joint working with the Assembly Government and others.</p>		Baseline	2004/2005	2005/2006	2006/2007	Percentage improvement	4.65	8.65	12.65	16.65
	Baseline	2004/2005	2005/2006	2006/2007							
Percentage improvement	4.65	8.65	12.65	16.65							
Monmouth	We are working towards achieving the national objective of a 12 per cent improvement in domestic energy efficiency from 1997-2007, through joint working with the Assembly Government and others.										
Neath Port Talbot	We are working towards achieving the national objective of a 12 per cent improvement in domestic energy efficiency by 2007, through joint working with the Assembly Government and others.										
Newport	We are working towards achieving the national objective of a 12 per cent improvement in domestic energy efficiency by 2007, through joint working with the Assembly Government and others.										
Pembrokeshire	We are working towards achieving the national objective of a 12 per cent improvement from the HECA baseline position of 1997 in domestic energy efficiency by 2007, through joint working with the Assembly Government and others.										
Powys	<p>We will achieve a percentage reduction in energy use and CO₂ emissions in the housing stock by the end of the agreement. Our targets for this are as follows:</p> <table border="1"> <thead> <tr> <th></th> <th>Baseline</th> <th>2004/2005</th> <th>2005/2006</th> <th>2006/2007</th> </tr> </thead> <tbody> <tr> <td>Percentage reduction</td> <td>1.5%</td> <td>0.5%</td> <td>1.5%</td> <td>3.27%</td> </tr> </tbody> </table>		Baseline	2004/2005	2005/2006	2006/2007	Percentage reduction	1.5%	0.5%	1.5%	3.27%
	Baseline	2004/2005	2005/2006	2006/2007							
Percentage reduction	1.5%	0.5%	1.5%	3.27%							
Rhondda Cynon Taff	We are working towards achieving a 12 per cent reduction in energy use and CO ₂ emissions in the housing stock throughout the County Borough, through joint working with the Assembly Government.										
Swansea	We are working towards achieving the national objective of a 12 per cent improvement in domestic energy efficiency by 2007, through joint working with the Assembly Government and others.										
Torfaen	We are working towards achieving the national objective of a 12 per cent improvement in domestic energy efficiency by 2007, through joint working with the Assembly Government and others.										

Council	Wording of Policy Agreement Target 7 (b)				
Vale of Glamorgan	We will achieve a reduction in the energy use and CO ₂ emissions in the private and public-sector housing. Our targets for this are as follows:				
		Baseline	2004/2005	2005/2006	2006/2007
	Percentage reduction	N/A	7% (over 1997 baseline)	11% (over 1997 baseline)	14% (over 1997 baseline)
Wrexham	We are working towards achieving the national objective of a 12 per cent improvement in domestic energy efficiency by 2007, through joint working with the Assembly Government and others.				

Note

1 In effect Powys County Council agreed to a 12 per cent improvement, as by March 2003 they had achieved a 5.23 per cent improvement in domestic energy efficiency.

Source: <http://new.wales.gov.uk/topics/localgovernment/Partnership/pagrements/?lang=en>



Appendix 2 - Reported performance figures

Councils reported to us the percentage improvement in domestic energy efficiency achieved by the end of March 2006, as compared to the 1997 baseline. As part of their statutory obligations under HECA councils must also provide the Assembly Government with annual progress reports. Consequently we also asked the Assembly Government Housing Directorate to provide data on the energy efficiency improvements reported by each council since 1997. The table below is based upon data received from each of these sources.

Council	Energy efficiency improvements reported to the Housing Directorate (1997-2006) (1)	Energy efficiency improvements reported by councils directly to Wales Audit Office (1997-2006)
Blaenau Gwent	10.54	12.44
Bridgend	6.85	7.93
Caerphilly	9.97	10.01
Cardiff	4.75	12.56
Carmarthenshire	1.24	7.9
Ceredigion	11.43	12.6
Conwy	7.81	7.8
Denbighshire	8.99	9.07
Flintshire	12.85	12.9
Gwynedd	7.19	7.62
Isle of Anglesey	5.69	11.56

Council	Energy efficiency improvements reported by Housing Directorate (1997-2006) Note 1	Energy efficiency improvements reported directly to Wales Audit Office (1997-2006)
Merthyr Tydfil	5.21	6.33
Monmouth	6.85	7.7
Neath Port Talbot	6.06	9
Newport	7.54	7.77
Pembrokeshire	3.21	6.46
Powys	10.13	10.13
Rhondda Cynon Taff	5.79	6.89
Swansea	9.7	14.3
Torfaen	7.78	7.78
Vale of Glamorgan	12.06	11
Wrexham	11.5	11.51

Notes

1 Figures from the Assembly Government Housing Directorate are based on HECA submissions received from local authorities over the period from 1997. Some councils are more likely to comply with HECA reporting requirements than others. Thus the performance figures are not in all cases based upon a complete set of HECA reports.

Sources: Assembly Government Housing Directorate and Wales Audit Office survey of 22 councils.



Appendix 3 - Funding available for home energy efficiency work

Home Energy Efficiency Scheme (HEES) and HEES Plus

The HEES, introduced in November 2000, provides grants to low-income, 'fuel-poor' households to fund a range of insulation and heating measures including: loft insulation; draughtproofing; cavity wall insulation; gas room heaters and electric storage heaters, gas and oil central heating.

Since its inception the scheme has been administered on behalf of the Assembly Government by Eaga Partnership Ltd (which is also responsible for delivering equivalent schemes in England and Northern Ireland). Eaga's responsibilities range from promotion and marketing to assessing applicant eligibility, paying grants, appointing installers and quality assurance. The contract with Eaga Partnership Ltd was recently renewed following a new tender exercise. From a budget of around £7 million in 2001/2002, the budget for HEES has increased to almost £20 million in 2006/2007. Home Energy Efficiency Scheme funding can be accessed in one of two ways. Each year a proportion of the budget is ring fenced to support bids made directly to the scheme by RSLs ([Appendix 4](#)), the remaining funds are then allocated to individual householders. In all cases, householders receiving grant assistance under the scheme must meet certain eligibility criteria.

The scheme takes two forms:

Firstly HEES under which eligible households must:

- have a child under 16; or
- be pregnant and in receipt of Maternity Certificate MAT B1.

and are in receipt of any of the following:

- Income Support;
- Working Tax Credit with a household income of less than £15,460;
- Council Tax Benefit;
- Child Tax Credit with a household income of less than £15,460;
- Housing Benefit; or
- Income Based Job Seeker's Allowance.

Secondly HEES Plus aimed at:

Householders who are either aged 60 or over, or are lone-parent families with a child under 16 and in receipt of any of the following benefits:

- Income Support;
- Housing Benefit;
- Council Tax Benefit;
- State Pension Credit; or
- Income Based Job Seekers Allowance.

OR

Householders who are disabled or chronically sick, and in receipt of any of the following benefits:

- Working Tax Credit, Housing Benefit, Income Support, or Council Tax Benefit plus the Disability Element;
- Disability Living Allowance;
- Attendance Allowance;
- Industrial Injuries Disablement Benefit plus Constant Attendance Allowance; or
- War Disablement Pension plus Constant Attendance, Attendance Allowance or Mobility Supplement.

OR

Householders with a child under 16 living in the property, claiming Child Benefit, with the child receiving:

- Disability Living Allowance.

OR

- Householders aged 80 or over regardless of status.

Energy Efficiency Commitment

The EEC is government legislation that sets targets for gas and electricity energy suppliers to achieve improvements in energy efficiency by providing energy efficiency measures to households across the UK. The EEC began in April 2002 and required energy suppliers to achieve a target amount of domestic energy efficiency improvements by 31 March 2005. The second phase of the EEC began in 2005 and runs to 2008. The Energy Saving Target for the EEC 2005-2008 (EEC 2) was set by DEFRA at the end of 2004. The target is to

reduce domestic energy use by 130 terawatt hours (TW h), more than double the target set for EEC. The UK Government is consulting on targets for EEC 3 to cover the period 2008-2011.

As noted above, the overall framework for EEC, including relevant targets, is set by the UK Government. Ofgem, the Regulator, is responsible for administering the scheme, setting targets for individual suppliers, monitoring, enforcement and reporting progress to government. EEC is target driven, and as such utility companies are not required to spend a fixed budget. Utility companies operate a number of approaches to meeting these targets. For example, to encourage take up they offer householders or social housing providers free or discounted energy efficiency measures. Others have developed partnerships with manufacturers and retailers of energy efficiency products.

Low Carbon Buildings Programme

The DTI's Low Carbon Buildings Programme provides grants for microgeneration technologies for householders, community organisations, schools, the public sector and businesses. Phase 1 of the programme is managed by the EST and Phase 2 of the programme is managed by the Building Research Establishment (a charitable organisation founded to champion excellence and innovation in the built environment).

Launched on 1 April 2006, the programme will run over three years and replaces the DTI's Clear Skies and Solar PV programmes, which closed for applications on the 31 March 2006. The programme is UK-wide (apart from the Channel Islands and the Isle of Man) and will demonstrate how energy efficiency and microgeneration can work to create low-carbon buildings. There will be two streams of grants available:

- Stream 1 - these grants apply to smaller projects for homeowners; and



- Stream 2 - these grants apply to medium and large-scale microgeneration projects and are available to public, not for profit and commercial organisations.

Due to higher-than-expected demand, the March 2007 budget announced an additional £6 million for Stream 1, taking the total available to homeowners to more than £18 million.

The technologies covered by the Low Carbon Buildings Programme are listed below:

- solar photovoltaics;
- wind turbines;
- small hydro;
- solar thermal hot water;
- ground source heat pumps;
- water/air-source heat pumps;
- bio-energy;
- renewable combined heat and power;
- micro-CHP; and
- fuel cells.

Innovation Grant

The EST's Innovation Programme provided funding and technical support to local authorities, housing associations and their project partners for innovative energy efficiency projects across the UK. Since 2001, the programme has issued around £9 million of funding to over 270 projects. Funding is no longer available under this programme.

*Sources: Ofgem, EEC 2005-2008 Supplier Guidance, March 2007;
<http://www.eaga.com/grants/hees/index.htm>;
<http://www.energysavingtrust.org.uk/housingbuildings/funding/innovative/>
<http://www.energysavingtrust.org.uk/housingbuildings/funding/lowcarbonbuildings/>;
<http://www.energysavingtrust.org.uk/uploads/documents/housingbuildings/Extra%206m%20for%20green%20householders.pdf>*

Appendix 4 - Allocation of HEES funding to local authorities 2006-2008

For each financial year the Assembly Government ring-fences a proportion of the available HEES Budget to support bids made directly to the scheme by social landlords looking to improve the energy efficiency of those properties within their ownership. These ring-fenced funds equated to approximately £3 million in both 2006/2007 and 2007/2008. Councils are required to provide match funding.

Figure 7: Funding allocation and actual spent per council under the Assembly Government's HEES (2006-2008)

Council	Allocation of HEES funding to councils (2005/2006) £	Actual spend per council (2005/2006) £	Allocation of HEES funding to councils (2006/2007) £ Note 1	Actual spend per council (2006/2007) £	Allocation of HEES funding to councils (2007/2008) £ Note 2
Blaenau Gwent	60,000	7,602	25,000	387	
Bridgend					Note 3
Caerphilly	175,000	189,009	200,000	94,442	115,000
Cardiff	180,000	1,818		7,143	23,000
Carmarthenshire	90,000	32,170	100,000	33,570	280,000
Ceredigion	110,000	42,746	135,000	25,483	210,000
Conwy	60,000	26,196	50,000	24,777	50,000
Denbighshire	160,000	84,511	150,000	55,463	250,000
Flintshire	125,000	10,616	100,000	50,630	175,000
Gwynedd	130,000	218,923	125,000	200,267	100,000
Isle of Anglesey	50,000	13,525		811 Note 4	
Merthyr Tydfil		5,311		3,674	
Monmouth	30,000	217,893	40,000	4,268	
Neath Port Talbot	210,000	217,893	400,000	100,008	413,000
Newport	50,000	12,465		8,867	



Council	Allocation of HEES funding to councils (2005/2006) £	Actual spend per council (2005/2006) £	Allocation of HEES funding to councils (2006/2007) £ Note 1	Actual spend per council (2006/2007) £	Allocation of HEES funding to councils (2007/2008) £ Note 2
Pembrokeshire	190,000	110,283	125,000	95,936	70,000
Powys				315	
Rhondda Cynon Taff	170,000	133,777	180,000	90,992	
Swansea	200,000	52,556	100,000	27,725	312,000
Torfaen		10,999		9,744	Note 5
Vale of Glamorgan	150,000	27,997	150,000	17,284	78,000
Wrexham	125,000	47,348	75,000	34,529	100,000
Total	2,265,000	1,238,905	1,955,000	886,315	2,176,000

Notes

- 1 Bridgend, Cardiff, Isle of Anglesey, Merthyr Tydfil, Newport, Powys and Torfaen councils did not submit HEES bids to the Assembly Government for the 2006/2007 bidding round.
- 2 Isle of Anglesey, Blaenau Gwent, Merthyr Tydfil, Monmouthshire, Newport and Powys councils did not submit HEES bids to the Assembly Government for the 2007/2008 bidding round.
- 3 Bridgend did not submit a bid as they are the sole council to have completed the transfer of their housing stock. The Valleys to Coast Housing Association, which is now responsible for this stock, submitted a bid and received £117,000.
- 4 Officials at the Housing Directorate reported that tenants could apply to the scheme even where a council has made no application for funding, although this occurs across all councils not simply Anglesey.
- 5 Torfaen failed to meet the submission deadline and therefore was not allocated any funds through the Bidding Process.

Source: Assembly Government Housing Directorate

Appendix 5 - 'Good Practice' Case Studies

Action Planning to deliver HECA objectives

Case Study 1: Developing action plans in Flintshire County Council and Rhondda Cynon Taff County Borough Council

Flintshire County Council's recently formed Energy Conservation Unit is part of the Council's Community and Housing Services Directorate. The 2006/2007 Service Plan for the unit links objectives with key actions, milestones, targets and responsibilities. The unit has also developed a series of local targets and performance indicators against which to assess progress.

Those relating to HECA objectives include:

- ensuring that cavity or loft insulation is installed in 650 local-authority homes;
- providing insulation measures to 1,500 private dwellings;
- providing energy advice to 53 per 1,000 of population; and
- uploading insulation and heating data on 1,000 homes.

The Unit Manager assesses progress against these local targets quarterly.

Rhondda Cynon Taff County Borough Council has developed a Domestic Energy Strategy for the period 2005-2007.

The strategy has six specific aims that are related (either directly or indirectly) to meeting HECA targets:

- ensure the Council's portfolio of domestic properties becomes more energy efficient;
- encourage the uptake of energy-efficient practices across all tenures within the Council;
- identify and validate improvement targets which are realistic and achievable, and which reflect local, national and UK policy targets and drivers;
- work towards the elimination of fuel poverty and the provision of affordable warmth for all residents;
- reduce the incidence of illness and premature death caused by fuel poverty; and
- use the least environmentally-damaging forms of energy and reduce CO₂ emissions accordingly.

For each of the aims a number of objectives are identified along with actions, responsibilities, target dates and funding sources. This is a useful document in terms of identifying specific actions and lines of accountability. However, there was no comprehensive plan for assessing progress against the strategy and no evidence that progress was being reported to members. The Council intends to review the strategy in light of restructuring of the housing department following stock transfer.

Contact: Nia Prys Williams - HECA Officer - Telephone: 01352 703766

E-mail: Nia_prys-williams@flintshire.gov.uk

Contact: Teryl Lanfear - HECA Officer - Telephone: 01443 485515

E-mail: teryl.lanfear@rhondda-cynon-taff.gov.uk



Working with external organisations to secure funds for energy efficiency works

Case Study 2: 'Warm Wales' in Neath Port Talbot County Borough Council and Wrexham County Borough Council

Cymru Gynnes Ltd (Warm Wales) builds upon the most successful Warm Zones Model developed at Stockton on Tees by National Grid Transco (NGT) and subsequently rolled out to Redcar and Cleveland and Newcastle upon Tyne. Warm Wales, led by NGT's Affordable Warmth Programme, started its first three-year project at Neath Port Talbot Council in 2004. This was followed in December 2005 by a second three-year project in Wrexham Council. Wrexham sees the development of the Warm Wales Scheme as a key element in delivering their Anti-poverty Strategy.

Both schemes operate as partnerships between the Councils, the NGT, npower, Warm Zones Ltd and the Assembly Government. They seek to alleviate fuel poverty by:

- using teams of assessors to survey private homes in the locality and identify households in fuel poverty;
- initially targeting assessment and installation work upon those wards identified as experiencing high levels of social deprivation (although both councils expect assessment teams to have visited all wards by the end of the three-year period);
- providing financial assistance for a range of energy efficiency works in homes assessed as suffering from fuel poverty;
- referring eligible households to relevant grant schemes such as the Assembly Government's HEES;
- co-ordinating and funding a network of organisations to offer advice relating to debt, benefits and energy efficiency;
- providing owner-occupiers over the age of 60 with free installation measures; and
- installing a range of energy efficiency works in all council-owned properties (regardless of ability to pay).

Available measures include cavity wall and loft insulation, low-energy light bulbs and hot-water tank jackets. This large-scale and systematic approach to identifying fuel-poor households and carrying out relevant energy efficiency works creates blocks of work for installers and enables the partnerships to take advantage of efficiencies of scale. The Assessment Phase will provide detailed and comprehensive information about the condition of housing, particularly private-sector housing, in the area.

Schemes are funded predominantly by the Councils, the EEC Partner and householders, although other sources such as European funds may be used. For these three main sources estimated funding for installation measures breaks down as follows:

Warm Wales (Neath Port Talbot County Borough Council)		
Funding provider	£	% rounded up to nearest whole
npower (EEC Partner)	6,835,405	67
Neath Port Talbot County Borough Council	2,400,000	24
Householder contributions	970,219	10
Total	10,205,624	

Scheme outcomes: Neath Port Talbot County Borough Council

By 31 October 2006 over:

- 34,000 initial assessments have been completed;
- 16,100 detailed home surveys carried out;
- 15,000 homes have received free loft and cavity wall insulation;
- 1,100 homes have received discounted measures;
- 500 new or improved gas heating systems have been installed;
- 250 homes have received a new gas connections;
- 100,000 free low-energy light bulbs have been distributed;
- 60,000 households have received free energy efficiency advice; and
- 8,500 people have requested free benefits advice and over £1.25 million has been paid in new or backdated payments.

Warm Wales (Wrexham County Borough Council)

Funding provider	£	%
npower (EEC Partner)	5,819,564	66
Wrexham County Borough Council	664,643	7
Householder contributions	2,409,163	27
Total	8,893,370	100

Scheme outcomes: Wrexham County Borough Council

To January 2007:

- the Council estimated that residents have made an equivalent of over £5 million in energy savings since the introduction of the Warm Wales Initiative;
- cavity wall and loft insulation equivalent to £1 million had been installed free in approximately 5,000 homes, with an estimated reduction in CO₂ emissions of over 900 tonnes; and
- fuel poverty levels within the Council are estimated to have decreased from 19 to 16 per cent.

In both cases the scheme is likely to:

- alleviate fuel poverty by increasing income levels and/or reducing the amount of energy needed to heat the home to a comfortable level; and
- reduce energy consumption and associated CO₂ emissions by improving the capacity of the home to retain heat and/or to generate heat more efficiently.

However, to accurately assess the impacts of the scheme on energy use and carbon emissions, the Council needs to gather before and after energy consumption data from relevant utility companies. Although it is possible to estimate the theoretical savings by modelling using SAP.

The potential to extend these schemes across Wales has yet to be explored.

Contact: Bill Jones - Principal Energy Officer - Telephone: 01978 297208

E-mail: bill.jones@wrexham.gov.uk

Contact: Peter Morgan - Energy Manager - Telephone: 01792 512610

E-mail: peter.morgan@neath-porttalbot.gov.uk



Case Study 3: 'Here to help' in Gwynedd Council

Looking to alleviate relatively high levels of fuel poverty, Gwynedd Council entered into an agreement with British Gas in 2004 to run a private sector 'Here to Help' Scheme. The Council's 2003 Stock Condition Survey estimated that 38.6 per cent of households were likely to suffer from fuel poverty (compared to the Welsh average of 31 per cent of households).

'Here to Help' initially focused on private households in the designated area of Dyffryn Nantlle. As such, it was the first scheme in the UK to target private households at risk of fuel poverty. The scheme provided householders with free energy efficiency measures and benefits health checks. Assessors made contact with 63 per cent of households within the designated area, 450 energy saving measures were installed in 347 properties, and over half of those agreeing to a Benefits Health Check were eligible for additional benefits (the average across this group was £21.04 per week).

In light of these successes the Council decided to extend the scheme to the whole private housing sector. Financial constraints meant that the Council could not implement the scheme across the whole of Gwynedd at the same time. To achieve the greatest impact on fuel poverty, the scheme initially covered those three wards identified as suffering from the highest levels of deprivation. This was done through a piece of commissioned research which included data from the Welsh Index of Multiple Deprivation and other local sources. By the end of January 2007:

- 1,152 properties had received cavity wall insulation;
- 2,709 properties had received loft insulation; and
- 244 hot-water jackets had been installed.

A local partnership has also been developed with the Pension Service and the Citizen's Advice Bureau to simplify the Benefit Health Check Process. More recently the Council has taken further advantage of funds available under the EEC to develop a Here to Help Scheme operating within the public sector.

Contact: Adrian Roberts - Housing Strategy and Best Value Officer - Telephone: 01286 679304
E-mail: adrianroberts@gwynedd.gov.uk

Case Study 4: 'CO₂i' in Powys County Council

In August 2005 Powys County Council, in conjunction with several energy suppliers, local specialist contractors and the West Wales Eco Centre, launched the CO₂ Initiative (CO₂i). The scheme provides all private-sector residents in areas identified as experiencing high levels of deprivation (as assessed using the Welsh Index of Multiple Deprivation) with the opportunity to apply for funding from both the Council and the utilities 'EEC' Fund to install loft and cavity wall insulation, draftproofing for windows and external doors, hot-water tank jackets, radiator reflector panels, replacement high-efficiency boilers and solar hot-water panels. The level of funding available per household depends upon the property type and the fuel sources used for central heating.

Funding for installation measures breaks down as follows:

Funding provider	£	%
Powys County Council	1,386,000	44
Energy suppliers EEC	659,000	21
UK Government DTI Clear Skies Scheme	82,000	3
Householder contributions	1,017,000	32
Total	3,144,000	100

By the end of January 2006 the following measures had been installed:

Measure type	Number of such measures installed
Cavity wall insulation	1,957
Loft insulation	2,560
Door and window draft proofing	465
'A' rated condensing boilers	230
Heating controls	3,152
Hot-water tank jackets	310
Solar hot-water panels	139
Low-energy light bulbs	20,400
Written energy advice to householders	2,367



The following table outlines the estimated impacts of these measures.

Reduction in CO ₂ emissions	9,066 tonnes per year
Contribution of CO ₂ i to reported energy efficiency gains across Powys for period 1 April 2004 to 31 March 2007	1.92%
Energy saved	33,205,883 kWh per year
Reductions in household fuel bills	£1,243,000 per year

Contact: Stuart Davies – HECA Officer – Telephone: 01597 827139
E-mail: stuart.m.davies@powys.gov.uk

Case Study 5: 'Healthy Homes' in Bridgend County Borough Council, Newport City Council, Merthyr Tydfil County Borough Council, Rhondda Cynon Taff County Borough Council and Monmouthshire County Council

In March 2006 the South East Wales Energy Agency (supported by Newport City Council and Merthyr Tydfil County Borough Council, both providing a small financial contribution) secured £47,500 over two years to run the Healthy Homes scheme. Under the scheme each of these councils receive eight days attendance over two years at events such as local shows, older person's information days and at market stalls. At these events a trained advisor from the Energy Agency provides information on energy efficiency and takes referrals for grants to provide cavity wall and/or loft insulation and heating repairs.

Each Council also receives 20 training sessions lasting one hour covering fuel poverty, its causes and solutions. Trainees learn how and why to refer someone into the Healthy Homes scheme. These training sessions are aimed at key workers such as health staff, council grants staff, voluntary workers and charities working with vulnerable people. Once a person is referred to the Healthy Homes scheme a member of staff takes all the required information and decides on the most suitable grant scheme for the client. The client is then sent a letter explaining the scheme they have been entered into and the next stage in the process. Staff monitor the referrals on a regular basis to ensure the measures are installed as quickly as possible. Once informed that the work is complete, the Energy Agency sends a feedback letter to evaluate customer satisfaction.

The Healthy Homes team also researches charity and benevolent funding to provide measures for people unable to use existing schemes. An example of this is a recent grant of £500 made by the Midwifery Benevolent Fund to a woman in Merthyr Tydfil who was unable to afford loft and cavity wall insulation.

Since its launch Healthy Homes has secured additional funding of £60,000 from the Scottish Power Energy People Trust to provide a crisis fund for those residents of Newport or Merthyr Tydfil who are not eligible for existing grant schemes or require measures not covered by existing schemes (EST Annual Review 2005/2006). This fund covers items such as hot-water tank jackets, heating repairs and temporary or replacement heating.

Since the launch of the Healthy Homes Scheme three other councils (Bridgend County Borough Council, Rhondda Cynon Taff County Borough Council and Monmouthshire County Council) have joined the project by making a small financial contribution. These councils will receive up to 10 briefing sessions each year for their choice of staff.

Contact: Dean Partridge - Energy Manager - Telephone: 01656 642862

E-mail: partrde@bridgend.gov.uk

Contact: Paul Thomas - Principal Strategic Technical Officer - Telephone: 01633 223227

E-mail: paul.thomas@newport.gov.uk

Contact: James Edwards - Energy Officer - Telephone: 01685 726208

E-mail: james.edwards@merthyr.gov.uk

Contact: Teryl Lanfear - HECA Officer - Telephone: 01443 485515

E-mail: teryl.lanfear@rhondda-cynon-taff.gov.uk

Contact: Monmouthshire is currently recruiting an officer to lead on HECA



Case Study 6: 'Energy Kids' in Newport City Council, Vale of Glamorgan Council and the City and County of Cardiff

Energy Kids aims to raise children's awareness of the impact of excessive consumption of fossil fuels, and foster an early understanding of sustainable energy use. Children may not be in a position to reduce domestic energy consumption through changes to the fabric or services of their homes. However, Energy Kids works on the premise that by altering their own behaviour children can act as ambassadors and reduce energy use (for example, by switching off televisions and other electrical products after use).

The scheme currently operates in Newport, Vale of Glamorgan and Cardiff Councils, and is delivered through partnership arrangements between the relevant council and the South East Wales Energy Agency.

Agency staff deliver a one-hour presentation to school children between the ages of seven to 11 covering the following areas:

- energy forms (eg, gas, coal, oil);
- the effects of using fossil fuels to produce energy;
- the variety of ways in which energy is used;
- methods for reducing energy use; and
- generating energy from renewable sources.

Participating children are also encouraged to complete with their parents a Home Energy Check. On receipt of these the agency provides the family with a report identifying:

- techniques for making their homes more energy efficient; and
- energy efficiency grants for which the household are eligible.

In linking the children and their families with funding sources such as the HEES, Energy Kids aims to tackle fuel poverty and the associated disadvantages experienced by those children living in fuel poverty.

The cost of the scheme is £98 plus VAT for two one-hour presentations. The Energy Agency operates a discount system of up to £50 according to the number of Home Energy Checks resulting from the presentations. Newport City Council Housing Department took the decision to use part of its domestic energy efficiency budget to fully subsidise the scheme in all its 40 schools. The Vale of Glamorgan Council provides subsidy for the first ten schools applying to take part in the scheme. Any other schools wishing to take part must fund the scheme directly.

Contact: Paul Thomas - Principal Strategic Technical Officer - Telephone: 01633 223227

E-mail: paul.thomas@newport.gov.uk

Contact: Rehanna Chaudhri - Technical Officer - Telephone: 02920 537364

E-mail: RChaudhri@cardiff.gov.uk

Contact: Dean Partridge - Energy Manager - Telephone: 01656 642862

E-mail: partrde@bridgend.gov.uk

Cross-departmental working supporting HECA objectives

Case Study 7: Caerphilly County Borough Council - Sustainable Development Design Brief

Caerphilly County Borough Council, with the support of its internal Sustainable Development Advisory Panel, has developed a Sustainable Development Design Brief to be used in the sale of surplus land for building developments. The brief is intended to improve upon building regulations, planning guidance and building methods but not to override them.

The Design Brief is being tested in respect of the sale and redevelopment of the former Bedwellty Comprehensive School site, having drawn on the experience and recommendations of a report into the incorporation of sustainable development considerations in a previous housing development at Bryn Road, Cefn Forest. Potential features of these developments include:

- renewable energy;
- use of sustainable construction materials;
- enhanced insulation;
- orientation of properties to maximise daylight and solar gain;
- water conservation through the use of 'grey water systems'; and
- low-energy ventilation and lighting.

The Council will benefit from having sustainable housing built within its Borough. Such developments will also contribute to the objectives of the Living Environment Partnership, one of four key strategic partnerships that support delivery of the Caerphilly Community Strategy. The Partnership includes commitments: 'to encourage the development and maintenance of high quality, well designed and efficient, sustainable homes and environments which can meet all needs'; and 'improve energy, waste and water efficiency and promote environmentally acceptable renewable energy to reduce fuel poverty, maintain a cleaner environment and help reduce global warming'.

Contact: Steve Martin - HECA Officer - Telephone: 01443 864645
E-mail: martins@caerphilly.gov.uk

Using financial incentives to encourage domestic energy efficiency

Case study 8: Council Tax Energy Efficiency Credit Scheme, Conwy County Borough Council

Since March 2006, eligible householders in Conwy County Borough Council who purchase cavity wall insulation from British Gas have received a credit of £60 towards their Council Tax Account for 2006/2007. British Gas offers the cavity wall insulation at a subsidised cost to the householder. Under the scheme the council receives a £15 Referral Fee from British Gas for every household taking up the scheme.

To qualify, the householder had initially to agree to British Gas installing insulation worth at least £174; this has since been increased to £250 (discounted from an average of £430). The discounted insulation and the Council Tax credit is not available to Council or Housing Association tenants or householders entitled to free insulation under other schemes. From March 2007 those installing solar heating and water systems will receive the same council tax credit and may apply for grants towards installation costs.

The most recent figures indicate that 418 households have taken advantage of the scheme, suggesting that at least some residents saw the scheme as offering better value for money than other incentives available. It is estimated that householders could recoup their investment within 18-24 months and achieve savings on future energy bills. Additionally, the scheme raises energy awareness – both for residents (through Council Tax demand notifications) and within the Council (as the scheme required approval from both members and Finance officers). The Council reported that administering the scheme had minimal resource implications.

Contact: Adrian Johnson - Maintenance Surveyor - Telephone: 01492 574230
E-mail: Adrian.johnson@conwy.gov.uk



Cross-departmental working supporting HECA objectives

Case Study 9: Installing ground and air source heat pumps in Monmouthshire County Council and Flintshire County Council

In mid 2006 Monmouthshire County Council installed ground source heat pumps in six Council owned properties in the village of Cae Capel, near Raglan. The properties had previously used coal fired heating systems, which the elderly residents were finding progressively more difficult to meet the physical demands of maintaining. The village did not have a gas supply and the Council were looking to develop an acceptable low carbon emissions system.

Air source heat pumps extract latent heat from the air. This heat is then pumped through a heat exchanger which in turn heats water circulating in a coil. This coil transfers the heat to water stored in an insulated tank which is then pumped through low pressure radiators or is drawn off as domestic hot water. The system selected was tested by Heatking in Scotland on severely exposed sites at Fort William and Lanarkshire and consists of an external encased fan and heat exchanger unit mounted on a concrete plinth. It is claimed to work in ambient air temperatures down to -14 degrees Celsius. The circulating temperature in the radiators is lower than normal (around 40 degrees C compared with up to 60 degrees C in conventional systems) consequently the surface temperatures in the radiators are lower, which protects elderly people from contact burning but demands larger radiators to produce sufficient heat.

As part of three renewable energy pilots being run across Wales, Monmouthshire County Council has recently secured funds from HEES to install air-source heat pumps in 11 council-owned properties. Each installation currently costs approximately £7,000 including retrofitting of radiators, hot-water cylinders and pipe work. HEES makes a contribution of £3,600 per property. The remaining costs are met by the Council.

As part of the second renewable energy pilot Flintshire County Council is using HEES funding to install ground source heat pumps (GSHPs) in eight Council properties. GSHPs extract heat from the ground through heat collecting pipes (containing water and antifreeze) installed in a borehole or shallow trench. The energy generated is then used to provide space heating and domestic hot water. Installation costs are in the region of £8,000, with HEES again contributing £3,600 per property. The remaining costs are to be met through a partnership including the Council and an EEC provider.

In both pilots the Councils will provide before and after consumption data to Eaga for analysis. Eaga will also examine the experiences of both customers and installers, before feeding back to the Assembly on the impact of these pilots, and the feasibility of extending such technologies to other fuel-poor households which cannot be helped through more traditional energy efficiency measures.

Contact: Nia Prys Williams - HECA Officer - Telephone: 01352 703766
E-mail: Nia_prys-williams@flintshire.gov.uk
Monmouthshire is currently recruiting an officer to lead on HECA

Cross-departmental working supporting HECA objectives

Case Study 10: Installing solar panels in Monmouthshire County Council, Powys County Council and the City and County of Swansea

In 2002/2003 Monmouthshire County Council carried out a fuel switching exercise involving six Council owned bungalows in the village of Dingestow, near Monmouth. At the time the properties were heated by coal fired systems and the village did not receive a gas supply. Despite some technical difficulties, oil fired boilers for heating and roof mounted solar collector systems for domestic hot water were installed in four properties. Typical installation costs for a small three bedroom bungalow amounted to £8,300. Each solar collector system was approximately £3,300 to supply and install, while installing boiler units cost approximately £1,500. The remaining costs related to removing existing Parkray solid fuel boilers, reconstruction of cupboards, general builder work items and the supply and installation of the oil storage tanks. Monmouthshire County Council is currently seeking funds to identify the impact of these installations upon energy consumption, fuel bills and CO₂ emissions. Any such assessment would seek to compare the energy efficiency gains of this scheme with those of the air source heat pumps also installed by the Council.

The City and County of Swansea has installed solar panels in 28 previously coal heated Council properties in the Clydach area (also an area without a gas supply). The panels provide energy which is converted into a heat source capable of providing domestic hot water. The scheme is funded through the utility companies' Social Housing Programme, and grants of £18,180 and £14,000 from the Department for Trade and Industry's Clear Skies programme and Solid Fuel Association respectively. In addition to fuel switching the eligible properties will also receive improved insulation. Scheme costs were minimised as those homes selected were already part of a reproofing programme being run under the Council's Capital Maintenance Programme.

In tests performed for the DTI the predicted energy contribution will be approximately 1,351kWh per household per annum of useful hot water. Estimated savings in CO₂ emissions equals 0.5 tonnes per property per annum. The Council intends to monitor the success and reduction in fuel bills one year from completion of the project.

The remaining renewable energy pilot project currently underway in Wales involves the installation of solar heating systems in 13 dwellings, seven private properties and eight Council owned properties in Powys. HEES has contributed £2,000 per household to installation costs, with Powys County Council providing additional funds. As part of this agreement Eaga will receive before and after consumption data, and they will survey customers and installers' experiences. However, as Eaga acknowledges, a large scale pilot using control groups and a wider range of renewable energy sources will be needed in future. See below for a description of the work Wrexham County Borough Council has carried out with North East Wales Institute to design such an evaluation study.

Contact: Stuart Davies - HECA Officer - Telephone: 01597 827139

E-mail: stuart.m.davies@powys.gov.uk

Contact@ Pam Walters - HECA Officer - Telephone: 01792 652457

E-mail: pam.walters@swansea.gov.uk

Monmouthshire is currently recruiting an officer to lead on HECA



Case Study 11: Penmorfa biomass project as run by Ceredigion County Council

To improve energy efficiency and reduce CO₂ emissions Ceredigion County Council developed the Renewable Energy Facility at Penmorfa. This facility provides heating and hot water to a school, an office block, a care home and 30 self-contained flats. The total contract value for the design and installation of this wood-fuelled system was £675,000 and the facility was completed in October 2005. The project received substantial grant funding from the Assembly Government's Wood Energy Business Scheme, and from the EST through its Community Energy Programme.

Ceredigion has a plentiful supply of sustainably-grown wood meaning that fuel for the facility can be secured locally, creating jobs and adding further value to the local economy. The Council has estimated that, in 2006/2007, the facility will generate a reduction in CO₂ emissions of 400 tonnes, as well as delivering a 42 per cent reduction in energy costs for the sites it supplies (an equivalent saving of £29,000).

Contact: John Williams - HECA Officer - Telephone: 01545 592188
E-mail: johnwil@ceredigion.gov.uk

Case Study 12: Improving the energy efficiency of park homes in Powys County Council

Park homes are often built to lower energy efficiency and insulation standards than more traditional dwellings, their occupants are often the elderly on low incomes and the sites are often not connected to mains gas or electricity. The poor efficiency of these homes makes them significant emitters of CO₂. To address the specific issues facing such 'hard to heat' properties, Powys County Council, in conjunction with partners including, Herefordshire Council, two Energy Agency's and Energy Efficiency Advice Centres, npower and the EST, ran the 'Park Home Energy Efficiency Living' (PHEEL Good!) scheme.

Under what was initially a two year scheme, beginning in March 2004, all 379 park homes within Powys could apply for external wall insulation, replacement roof insulation, replacement energy efficient boilers, heating controls, draft proofing and floor insulation. The scheme also provided funds for the installation of two forms of renewable energy sources: solar panels for hot water and air source heat pumps. The Council provided individual homes with a means tested grant of £5,000 per household, although the Council dropped means testing for the second year of the scheme.

A number of problems (eg, finding suitable contractors, ineligibility of some park homes and sites for a range of grants, legislative complexities and technical difficulties associated with the design of park homes) meant that the scheme did not meet its original targets. However, the scheme was successful in lobbying Government into making changes to legislation ie, the definition of a mobile home, which dated back to the 1960s. At the completion of the first phase of the scheme finished in March 2006 the following measures had been installed.

Measure type	Number of such measures installed
External cladding	46
Boilers	19
Roofs	23
Separate heating controls	5
Radiator panels	4
Draft proofing	7
Hot-water tank jackets	1
Low-energy light bulbs	1,200
Solar hot-water heating	2

Funding for these installation measures breaks down as follows:

Funding provider	£	%
Powys County Council grant funding	344,821.21	99
Householder contributions	1,826	1
Total	346,647.21	

The scheme also received £90,000 from the EST Innovation Grant funding towards project management, and £18,000 from npower for project management and the design and production of the 'PHEEL Good!' Guide.

These measures were estimated to reduce CO₂ emissions by 432.52 tonnes per year.

Contact: Stuart Davies - HECA Officer - Telephone: 01597 827139
E-mail: stuart.m.davies@powys.gov.uk



Case Study 13: Wrexham County Borough Council's renewable energy feasibility study

In October 2006 Wrexham County Borough Council ran a seminar on 'Renewable Energy in Housing' for staff from both the Council and other organisations. As part of this seminar commercial firms provided input relating to three forms of renewable energy: GSHPs; wind turbines and solar panels. Subsequent to this seminar Wrexham County Borough Council set up a working group with representatives from Housing and Public Protection and the NEWI. The aim of the group was to assess the feasibility of installing such renewable energy sources in council-owned homes.

The Council has undertaken site visits to assess the suitability of groups of houses for each of the three technologies, and the Council's energy efficiency officer has sought tenants' opinions regarding the relevant installations. The Council also proposes to identify three similar groups of properties which will be used as control groups. Prior to the installation NEWI will evaluate the tenants' utility bills for the previous 12 months in both the renewable energy and control groups.

Following the installation of renewable technologies fuel bills for these homes will be monitored for 12 months alongside those of the control group. After this 12 month period the Centre for the Built Environment at NEWI will carry out a socio economic study examining such issues as installation costs, pay back periods, financial and emission savings and the tenants' opinions and experiences of using the different systems.

The number of installations, and therefore the number of properties needed for the control groups, is subject to available funding and grants awarded. The Council is currently seeking funding from both the DTI's Low Carbon Buildings Programme and from utility companies under the second phase of the EEC Scheme.

Contact: Bill Jones - Principal Energy Officer - Telephone: 01978 297208
E-mail: bill.jones@wrexham.gov.uk

Appendix 6 - Study Methods

- 1 We carried out a Literature Review to identify existing practices, and summarise relevant policies, strategies, and legislation.
- 2 As part of initial scoping work, we engaged with representatives from the following organisations:
 - Eaga;
 - National Energy Action;
 - Energy Saving Trust;
 - South East Wales Energy Agency;
 - West Wales Eco Centre;
 - Mid Wales Energy Agency;
 - North Wales EEAC;
 - Mid and South West Wales EEAC;
 - All Wales HECA Forum;
 - Assembly Government; and
 - WLGA.
- 3 We circulated a questionnaire to all 22 councils in Wales to establish:
 - domestic energy efficiency gains secured to date;
 - methods used to collect data submitted through annual HECA Reporting Cycle;
 - management and funding arrangements; and
 - perceived effectiveness of internal and external partnership working.
- 4 Fieldwork was undertaken at each council during which we examined key documents and interviewed relevant officers and members.
- 5 We used *PowerPoint* presentations to report our findings to the relevant council.
- 6 We used a reference group, including representatives from the Welsh Local Government Association, councils, Energy Saving Trust, the Wales Consumer Council and the Assembly Government, to inform the development of the study question and methods, and comment upon emerging findings.