



Llywodraeth Cynulliad Cymru  
Welsh Assembly Government

# Housing Research Summary

## FUEL POVERTY IN WALES

### Introduction

The Welsh Assembly Government is committed to eradicating fuel poverty (as far as is practically possible) among vulnerable households by 2010 and among all households by 2018. This pledge is described in detail in the Fuel Poverty Commitment for Wales (WAG, 2003).

In order to implement the fuel poverty commitment, the Welsh Assembly Government required detailed information on the extent and distribution of fuel poverty in Wales. Prior to this study, such information did not exist. Instead, the Assembly Government used as a proxy for the number of households living in fuel poverty, the number of households eligible for the Home Energy Efficiency Scheme, as determined from the 1997/98 Welsh House Condition Survey (WHCS). However, subsequent research in England has shown that eligibility for such schemes is not a good indicator of fuel poverty.

The Welsh Assembly Government therefore commissioned the Centre for Sustainable Energy (CSE), the University of Bristol and Dr Richard Moore, visiting fellow at the University of Warwick, to provide a more accurate picture of the extent and characteristics of fuel poverty in Wales in 1997/98. This was undertaken by using data from the WHCS, supplemented by data imputed from the 1996 English House Condition Survey and the 1997/98 and 1998/99 Family Expenditure Surveys and Family Resources Surveys. This summary describes the first stage of the project and its findings on:

- the extent of fuel poverty in Wales and its causes;
- the distribution of fuel poverty in the Welsh housing stock;
- the distribution of fuel poverty among the household population; and
- the geographical distribution of fuel poverty down to the level of Welsh unitary authorities.



The second stage of the research will give predicted fuel poverty figures for each of Wales' electoral divisions. It is anticipated that the findings will be published in late summer 2005.

## THE STUDY

### Definitions of fuel poverty

The study adopts three definitions of fuel poverty. The first two definitions are essentially the same as those used for England in the UK Fuel Poverty Strategy (DTI/DEFRA, 2002). A household is deemed to be in fuel poverty if in order to maintain a satisfactory heating regime and cover other normal fuel costs, it would be required to spend on fuel more than 10% of its net income:-

- including housing benefit (the 'full' income definition); and
- excluding housing benefit (the 'basic' income definition).

Under each definition, households are considered to be in 'severe' fuel poverty if their fuel costs are more than 20% of their income.

In addition, estimates for fuel poverty are given for 'residual' income. This was calculated as full net income minus housing costs and equivalised to take account of household size and composition.

Equivalisation is an internationally recognised procedure for measuring income related poverty and is used in the Households Below Average Income (HBAI) series published by the Department for Work and Pensions.

Estimates for the 'residual equivalised' income definition of fuel poverty were

given according to two new thresholds of fuel poverty, which used fuel costs of more than:-

- 13% of income: for households in 'fuel poverty'; and
- 31.5% of income: for households in 'severe fuel poverty'.

These thresholds were selected because they generated approximately the same number of households in fuel poverty and severe fuel poverty as the numbers arrived at using the 10% and 20% thresholds under the 'full' income definition. This showed the impact of the third definition on the **distribution** of fuel poverty in Wales (e.g. the relative proportions of different household types), rather than on the **numbers** in fuel poverty. Estimates are also given in the full report for the 'residual equivalised' income definition using the standard 10% and 20% thresholds. It was not possible to compare fuel poverty in England and Wales according to 'residual equivalised' income because the EHCS does not include information on this definition.

### The methodology

At the time of this study, the latest detailed data on the Welsh housing stock and its households was that provided by the 1997/98 WHCS. However, a number of key variables, required to fully determine the energy efficiency of each sample dwellings, the exact income of the household and their level of fuel poverty were not collected by this survey.

Consequently, the methodology used for this study involved the generation of energy efficiency ratings, household incomes and fuel poverty estimates using data imputed from the 1996 English House

Condition Survey (EHCS) and the 1997/98 and 1998/99 Family Expenditure Surveys and Family Resources Surveys. These surveys were used because they were most contemporary to the Welsh survey, which nevertheless provided the bulk of data and formed the basis of the estimates.

The research for the study involved determining for each household in the WHCS sample:-

- the fuel costs required to maintain a satisfactory heating regime and cover other normal fuel costs, and
- the income of the household, on the various income definitions.

This involved the construction of three complex models, based on the 1997/98 WHCS and other data: (a) a SAP model, (b) an income model and (c) a fuel poverty model. These models are described in detail in the full report. A data file was also provided to accompany the full report. This gave the SAP rating, imputed household incomes and fuel poverty variables under each fuel poverty definition for each of the 12,037 households in the combined physical and social sample of the 1997/98 WHCS.

## THE FINDINGS

### The extent of fuel poverty in Wales

- Around 360,000 or 31% of all households in Wales lived in fuel poverty in 1997/98 on the 'full income' definition, of which 72,000 or 6% of all households suffered severe fuel poverty. Wales therefore had significantly higher levels of fuel poverty in 1997/98 than England (22% in fuel poverty, 3% in

severe fuel poverty in 1996). However, fuel poverty in Wales was comparable with that in several of the English regions in 1996, particularly Merseyside and the North East.

- The relatively high incidence of fuel poverty in Wales at this time can be attributed to a combination of low incomes, poor energy efficiency, high fuel prices (particularly for electricity), the country's relatively high levels of under-occupation and relatively high number of larger homes (in the sense that there are few flats in Wales).
- The divergence in fuel poverty levels between Wales and England is less when fuel poverty is measured on the 'basic' income definition. This is because, with its smaller rented sector (private and social), Wales had a significantly lower proportion of households in receipt of housing benefit. Under the 'basic' income definition, 394,000 or 34% of all households lived in fuel poverty in Wales, of which 118,000 or 10% lived in severe fuel poverty. The equivalent proportions in England were 27% and 5% respectively.
- The use of a 'residual equivalised' income definition of fuel poverty increases the number of households in Wales classed as fuel poor to around 510,000 or 44%, with 82,000 or 16% living in severe fuel poverty, applying the standard 10% and 20% thresholds. However, changing the thresholds to 13% and 31.5% of residual income produces similar totals (362,000 and 73,000 respectively) to 10% and 20% of 'full' income (which is why the new thresholds were selected).

### Fuel poverty in the housing stock

Under the full and basic income definitions, the distribution of fuel poverty in Wales in 1997/98 was broadly similar to that of England in 1996 with respect to tenure, age of housing, type of housing, type of heating system, type of heating fuel, SAP ratings and physical condition. The 'residual equivalised' income definition does not have a significant impact on the pattern of distribution of fuel poverty for most housing variables. The following summary gives comparisons between England and Wales on the 'full' income definition.

- In both Wales and England, the owner occupied sector has the lowest proportion of fuel poverty, but the greatest numbers of fuel poor. Around 201,000 out of the 360,000 fuel poor households in Wales are owner occupiers and 24% of all owner occupiers in Wales are fuel poor (16% in England).
- In Wales, local authority housing has the highest proportion in fuel poverty (51%), compared to other tenures. By contrast, fuel poverty is most frequent among private rented tenants in England (39%).
- Fuel poverty is lowest in housing built after 1964 in both Wales and England (23% and 15% respectively), compared to other age bands. However, due to the prevalence of local authority stock in this age band, fuel poverty is most extensive in housing built between 1945 and 1964 in Wales (39%), whereas it is more extensive in housing built before 1919 in England (28%).

- Fuel poverty is highest in end-terraced housing in both Wales and England (38% and 28% respectively). Fuel poverty is lowest in homes with central heating in both Wales and England (30% and 18% respectively), with mains gas as the main heating fuel (26% and 19%) and among properties in satisfactory condition (26% and 17%).
- In both Wales and England, the overall incidence of fuel poverty progressively decreases as the SAP rating improves. In Wales, 66% of households living in dwellings with SAP ratings under 10 are in fuel poverty, compared to only 7% of households in dwellings rated 65 or more.
- On all the main housing factors, fuel poverty is more widely distributed in Wales than in England, due to the impact of low incomes, high fuel prices, under-occupancy and the dearth of small homes. Compared to England, significantly higher proportions of fuel poverty are found in Wales in the socially rented sectors, post-war housing, detached and larger sized homes. Similarly, levels are higher in Wales than in England in homes with central heating, with mains gas heating, and of average energy efficiency and condition.

### Fuel poverty in the household population

In the UK Fuel Poverty Strategy, vulnerable households are defined as those with a person aged 60 years or over, a child under the age of 16, and/or a person who is disabled or has a long term illness. In both Wales and England, over half of all fuel poor households are those including a

person aged 60 years or over (52% in Wales; 56% in England). The following summary gives comparisons on the 'full' income definition.

- In Wales, households that include a person aged 60 years or over are most likely to live in fuel poverty (45%) and in severe fuel poverty (9%). Households that include members that are ill or disabled, but have no person aged 60 years or over or under 16 years, have the second highest proportion of fuel poverty (39%). In total, 38% of all vulnerable households are fuel poor compared with 14% of non-vulnerable households.
- In England, the distribution is significantly different. Households with members that are ill or disabled have the highest level of fuel poverty (39%) and those that are vulnerable because they have children under the age of 16 years, have the least (12%). This is lower than the rate (15%) for non-vulnerable households.
- There are significant differences between the distribution of fuel poverty among different household types between Wales and England. In Wales, lone parents have the highest level of fuel poverty, 65% compared to 34% in England. Single person households aged 60 years or over have the next highest proportion of fuel poverty (57%) in Wales, whereas in England these represent the largest group of fuel poor at 52%.
- In both Wales and England, single person households under the age of 60 are the third highest group, with 27%

and 31% respectively living in fuel poverty. In both countries, households with dependent children and other households without dependent children are the least likely to live in fuel poverty, although for both groups the incidence is significantly higher in Wales.

- As with housing factors, fuel poverty in Wales is more widely distributed among the general population than in England, with substantially higher levels occurring among lone parent families and other households with dependent children. Similarly, frequencies of fuel poverty in Wales are higher among middle aged and larger households and those approaching average or on average national incomes.

### Effects of definition

Because equivalisation takes account of household size and composition, it has a dramatic effect on the distribution of fuel poverty among different household types. In broad terms, the 'residual equivalised' income definition deflates fuel poverty in single households and inflates it in larger family households. It also results in the distribution of fuel poverty becoming much closer to that of general poverty or child poverty than is the case with the unequivalised 'full' and 'basic' income definitions of fuel poverty.

- Under the 'residual equivalised' income definition and using the new (13% of income) threshold, lone parents still have the highest proportion of households in fuel poverty in Wales (68%), based on 5 'household types'. However, the second largest group is 'households with dependent children' (43%). This group has the lowest rate

of fuel poverty under the ‘full’ and ‘basic’ income definitions.

- ‘Single person households aged 60 and over’ and ‘single person households aged under 60’ ranked 4th and 5th respectively in terms of levels of fuel poverty, using the ‘residual income’ definition (5 ‘household types’). By contrast, these groups ranked 2nd and 3rd under the ‘full income’ definition.
- The ‘residual equivalised’ income definition also dramatically affects the rate of fuel poverty among different age bands with respect to oldest occupants. The highest rate of fuel poverty under this definition (13% threshold) is found among younger households, i.e. those aged under 25 years (49%). By contrast, the highest rate is found among households aged 75 years or over (50%) under the ‘full’ income definition.
- Similarly, under the ‘residual equivalised’ income definition (13% threshold), the proportion of households in fuel poverty rises progressively with increased household size, from 19% in single person households to 80% in households with six or more persons. By contrast, the rate of fuel poverty tends to fall with increased household size under the ‘full’ and ‘basic’ income definitions, only rising again for households with 5 or more persons
- By excluding housing costs and thereby limiting income to only that available to be spent on fuel, the residual income definition significantly strengthened the correlation between fuel poverty and low income. Thus, 79% of households in the lowest (unequalised) income

quintile in Wales live in fuel poverty on the ‘full’ income definition. However, 84% of households in the lowest (equivalised) income quintile live in fuel poverty on the ‘residual equivalised’ income definition, using the 13% threshold. This figure rises to 93% under the 10% threshold.

### Geographical distribution

The geographical distribution of fuel poverty in Wales varies considerably between urban and rural areas and between the 4 regions (North, Mid, South West and South East) and the 22 unitary authorities. The following summary gives figures on the ‘full’ income definition.

- Under all definitions, fuel poverty in Wales is significantly higher in rural areas than in urban areas. Around 39% of rural households in Wales are fuel poor and 11% are in severe fuel poverty. This compares with 29% and 5% respectively for urban areas. In England, 23% of rural households lived in fuel poverty, compared to 21% of urban households.
- Regionally, the highest proportions of households in fuel poverty and severe fuel poverty are found in Mid Wales (39% and 11% respectively) and the lowest proportions in South East Wales (29% and 5%). However, with its large population, South East Wales still held the largest share (44%) of all fuel poor households in Wales.
- Similarly, Cardiff has the largest number of fuel poor households of any unitary authority, but the lowest proportion, alongside the Vale of Glamorgan (both 25%). Carmarthenshire has the highest proportions of households in fuel

poverty and severe fuel poverty (43% and 12% respectively).

- The different definitions of fuel poverty only have a small impact on the rank order of unitary authorities. For example, under the 'residual equivalised' income definition, Carmarthenshire and the Vale of Glamorgan are still at the top and bottom of the list (41% and 23% respectively). However, the rank order of some authorities between the two poles changed more than others.
- The ranking of authorities appears to stem from the differential impact of the main causes of fuel poverty (and combination of causes) in each of the authority areas, i.e. low incomes, poor energy efficiency, high fuel prices and under-occupation – the importance of each factor varying between the areas.

### Trends since 1997/98

In 1997/98, the prevalence of fuel poverty in Wales was high, but it is likely that it has fallen substantially since that date. In England, the 2001 EHCS estimated that the number of households in fuel poverty had fallen by as much as 60% since 1996 on the 'full' income definition, from 4.3 to 1.7 million.

The decline in fuel poverty in England resulted primarily from reductions in fuel prices after 1996 and higher incomes in 2001. It is therefore likely that by 2001 fuel poverty in Wales had also fallen by a broadly comparable proportion. However, since 2001, fuel prices have begun to rise, with the consequence that in both countries this trend is now likely to have reversed.



The full report is available electronically at [www.housing.wales.gsi.gov.uk](http://www.housing.wales.gsi.gov.uk). If you would like a print out please contact Helen Wyatt at the following address:

Further copies of this summary can be obtained from:

Helen Wyatt  
Research and Information Unit  
Social Justice and Regeneration Department  
Welsh Assembly Government, Cathays Park  
CARDIFF CF10 3NQ

Telephone: (029) 2082 1718  
E-mail: [helen.wyatt@Wales.gsi.gov.uk](mailto:helen.wyatt@Wales.gsi.gov.uk)

Website: <http://www.housing.wales.gov.uk>

ISBN 0 7504 3779 0

© Crown Copyright 2005

March 2005