Pilot Central Heating and Insulation Scheme for Older People Evaluation

Centre for
Housing Research

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December 2009

Executive Summary

Introduction

The Pilot Central Heating and Insulation Scheme was announced in May 2007 by the then Minister for Housing and Urban Renewal. The scheme was targeted at 150 privately owned homes occupied by people over age 65 with incomes of approximately €30,000 or less per year in the Ballyfermot, Whitehall and Crumlin areas of Dublin. The scheme involved the installation of central heating and insulation to homes which did not have these already installed, as well as upgrades to existing insulation and heating systems. The intention of this scheme was to contribute towards the reduction in fuel poverty in Ireland and to facilitate older people to remain in their own homes and communities for as long as possible through associated health gains.

The Department of the Environment, Heritage and Local Government provided 80 per cent of the funding for the scheme, with Dublin City Council providing the remaining 20 per cent. In addition to this 20 per cent, Dublin City Council also took responsibility for the project management and administration of the pilot scheme project management and administration of the pilot scheme. The total cost of the scheme was €1,037,941. The work was carried out by Dublin City Council-appointed contractors and Energy Action Limited. Energy Action provided insulation and energy-saving equipment, and also gave householders energy advice. In addition, Energy Action Ltd completed energy audits across this pilot scheme.

The role of the Centre for Housing Research was to evaluate the scheme. This report details the findings from the evaluation as well as providing some contextual information on similar initiatives.

Background to the Scheme: Policy Context and Evidence of Impacts

Lower-income households may find it difficult to both heat their homes and make them more energy-efficient, leading to fuel poverty or the inability to achieve adequate warmth due to cost. Fuel poverty can have negative medical and social effects on a household. Previous research has found that older people are more likely to inhabit older accommodation which, compared to new-build, is more likely to be in a poorer state of repair (McAvoy, 2007). Initiatives to-date have tended to focus on the provision of a fuel allowance during the colder months, improvements in electricity and gas allowances, refurbishments of local authority stock, and funding to community-based organisations for the installation of energy efficiency measures.

Two projects similar to this pilot scheme have been carried out in Northern Ireland – the 'Warming Up' project in Belfast and the 'Home is where the Heat is' project in Armagh. A qualitative evaluation of the 'Warming Up' project found that the scheme benefited households financially and there was some reference to improvements in conditions that can increase mental well-being and social inclusion. The lack of flexibility in providing interventions for people just over the eligibility threshold was reported as frustrating for workers in the field. The 'Home is where the Heat is' evaluation found that houses that received central heating and roof and wall insulation under the scheme showed marked decreases in the presence of condensation, mould and damp (but some remained relatively cold), and in health terms occupants reported fewer illnesses and health service visits. The evaluation timeline was too short to fully measure the links between home improvements and health gain, but high levels of user satisfaction with the scheme were noted.

A recent evaluation of the Warmer Homes Scheme found that the energy interventions made available under the scheme lead to health, thermal comfort and economic benefits to participating households. The evaluation findings suggest that the scheme can make a significant contribution to reducing fuel poverty as well as reducing the health risks associated with energy inefficient homes (Social Market Research, 2009).

Analysis of Energy Audit Data

Energy Action Ltd carried out the technical aspects of the evaluation (see Section 3). A Building Energy Rating (BER) on all houses included in the scheme was undertaken, and 78 of the houses upgraded were followed-up to carry out a more detailed analysis of the impact of the work undertaken. The following is a summary of the key findings.

- The BER scale generally extends from A to G, with A being the highest level of energy efficiency. Energy Action had to extend this to Q to accommodate dwellings included in the pilot scheme with very poor energy ratings; for example houses in this sample with no previous central heating and with poor insulation.
- As a result of the works carried out under this pilot scheme, the energy values per dwelling more than halved from an average of 527kWh/m^2/a to 242kWh/m^2/a; in other words, the average rating per dwelling went from H to D1 after the installations.
- Carbon dioxide emissions per year reduced by an average of almost 60 per cent from an average per dwelling of 10.1 tonnes to 4.2 tonnes. Therefore, over 900 tonnes of carbon dioxide for all dwellings upgraded was saved.

- Based on a typical dwelling included in the scheme, Energy Action calculated that the lifetime carbon credit saving was approximately €2,250 per dwelling or a total of €338,000 for 150 dwellings. The cost per dwelling for works carried out was calculated by Energy Action to be €6,600 and the payback in terms of carbon saving based on the Dwelling Energy Assessment Procedure (DEAP) calculations would be less than 3 years. Using the (UK) CERT calculation which has a lower
  life-time carbon saving, the payback is a more conservative 6.2 years.
- The estimated running costs per dwelling reduced on average from €1,650 to €936 (based on typical usage, not actual).In Energy Action's additional analysis of 78 dwellings, the upgrade of the water heating cylinder, hot water and space heating controls made a significant impact. The greatest impact however was the improved efficiency of the heat generators (the central heating boilers).

Profile of Applicants

A profile of applicants was undertaken using the information from the application forms received by Dublin City Council. Successful applicants tended to be in their early seventies; two-thirds lived alone and most lived in two and three bedroom houses. The majority of householders reported that they were reliant on pensions as their main source of income. A little over half of those who used the scheme had gas central heating already (the second most important heating option was storage heating); heating systems, however, tended to be old. Only one-third of applicants reported having attic insulation; again this was on average 20 years old.

Evaluation of the Impact of the Scheme on Participants

The aims of the Centre for Housing Research (CHR) evaluation were:

- to provide a profile of the applicants
- to measure user satisfaction and benefits of the scheme
- to investigate possible health impacts
- to establish the impact on the users' home comfort.

To measure user satisfaction, health impacts and users' home comforts a survey questionnaire was administered face-to-face to 66 households from across the three areas covered in the scheme. These households were selected, first on the basis of their geographical spread across the three target areas, and secondly on the basis that they were the first group of homes with completed works in this scheme. Data comparing the sample selected with those who availed of the scheme show a close match and can be considered broadly representative. It should be noted, however, that households that never had a central heating system previously were over-sampled due to their smaller numbers. Following the first round of interviews, participants were asked if they could be contacted again in a few months to see how the new heating and insulation was working out. In total 60 households were available to be re-contacted. These second-point interviews were undertaken by telephone.

Experience of Households who Previously did not have Central Heating

Of the 148 households for whom details were available, 41 previously did not have central heating in their homes. Just over half (21) of this group were interviewed as part of the evaluation. The majority (90 per cent) of the respondents described the temperature of their home in winter as cold to freezing – all but one of whom was dissatisfied with this. Houses could be draughty, prone to condensation and damp; they lacked insulation and tended to rely on a combination of heating sources for warmth. Some reported difficulty in maintaining the heat in the house, but two-thirds said they were not concerned about the costs of heating their home. When asked about their health, respondents generally stated that they were in good health. Illnesses commonly associated with the cold were not frequently cited within this sub-group. Respondents were generally satisfied with the work undertaken as part of the scheme and most (90 per cent) described using the new system as easy or not a problem. Over half of respondents found the energy advice given as useful. A high proportion (90 per cent) would recommend the scheme to others.

Experience of Households who Upgraded

Of the 148 households who had their application forms analysed, 107 previously had central heating. Of these, 45 completed questionnaires as part of the evaluation. Two-thirds of this group described their home as cold to freezing during the winter, and again most of these respondents were dissatisfied with this. Three-quarters of respondents said their homes were draughty, and about two-fifths reported damp. Over half of households said they spent more time in parts of the house with better heating (spatial shrinkage). While respondents said that their house warmed up within an hour of turning on the heating, about 60 per cent described maintaining the heat as difficult or very difficult. Over one-third said they worried about the cost of heating, but only one household reported frequently cutting back on their heating due to cost. Respondents tended to report themselves to be in good health. Arthritis/rheumatism was the most commonly experienced listed illness and over two-thirds of those who experienced this condition thought it got worse in the cold weather.

Those who had their heating system upgraded were generally happy with the scheme. Four-fifths found the energy advice useful; some did not recall getting this advice. Most found the new system easy to manage or figured it out. Almost all respondents (43 out of 45) stated they would recommend the scheme to others.

Longer-term Impacts of the Scheme

Some months after the work was completed, respondents who had agreed to be re-contacted and were available (60 in total) were administered a follow-up questionnaire by telephone. In general respondents remained satisfied with the scheme, and 95 per cent were satisfied with the energy advice received. All respondents reported they were more satisfied with the temperature of their homes following the works undertaken. The condition of houses was also better with less draughts (some remained through windows, for example). While the majority of respondents could use the new heating system, some were less sure. The timer in particular seemed to cause some difficulties. Most respondents reported that their home was warm within half an hour of turning on the heating and all were warm within an hour of doing so. Heat retention was also more evident, with two-thirds now reporting that it took a few hours for their home to cool after they had turned off the heating. Only two respondents expressed concern about their energy bills.

Over three-quarters of respondents reported that they felt their health had improved since the same time the previous year and there was low reporting of illnesses associated with the cold.

When asked a hypothetical question, two-thirds of respondents said they would have been willing to contribute to the cost of the work undertaken. Of those who could decide on a figure, about equal numbers said they would contribute up to €500, €500-€1,000, and €1,000-€3,000 respectively. Respondents did mention that they would have to take out loans to cover their hypothetical contribution.

Key Findings and Recommendations

- Respondents principally found out about the scheme through word-of-mouth rather than through newspaper advertisements. Therefore, it is possible that more isolated or more vulnerable people may be less likely to find out about the scheme. More consideration should be given to how to advertise schemes such as this based on how the intended target population access information (e.g. through advertising along fuel benefit payments).
- Respondents frequently cited concern over the preparations for the works to begin. It is possible that such preparations may have discouraged some people from applying and may have caused some anxiety for those who did. Clarity about what is expected of scheme participants with regard to moving furniture and flooring is important. If possible, some assistance in these tasks should be built into schemes for those who need help.
- In terms of the type of work to be undertaken, the energy audit found that the greatest impact can be achieved by the improved efficiency of heat generators, upgrading of water heating cylinders and heating controls. Wall insulation measures are also required to complement attic insulation and draught-proofing.
- Respondents cited willingness to contribute towards the cost of work undertaken (although this was unnecessary for this scheme); but they may not have had savings/credit available to them. Further consideration should be given to the potential for a financial contribution from households towards the cost of the work undertaken where it is feasible (e.g. through a pay-as-you-save type scheme), to allow for a greater spread of available funds across a wider population. However, low income households should not be excluded from having this work undertaken on affordability grounds.
- Overall respondents did not find their new system difficult to use, but some could not remember the more detailed information from winter to winter. A plain English guide - a set of clear guidelines with photos, written in large print using 'plain English' (as defined by National Adult Literacy Agency) - should be available to supplement the demonstration on how to use the new heating system.
- Respondents were satisfied that the contractors had done a good job, and had left their homes in as clean a state as possible. However, there were a few incidents where waste had been left behind and promises had been forgotten. A designated individual was appointed to follow-up with the respondents after the works were completed but this person could take a larger remit. A larger role for the quality controller is required to inspect the quality of the work undertaken, 'snag' and ensure that no rubbish is left behind and that all that has been promised has been delivered.
- When respondents were unsure of using their system or had problems, they were unsure who to contact. It would have been helpful if each household was given a business card of one person to telephone with any queries or problems.

SECTION ONE

Introduction

1.1 Overview of Scheme

The pilot central heating and insulation scheme was announced by the Minister for Housing and Urban Renewal in May 2007, and involved the installation of central heating and insulation to privately owned homes that did not have these already installed, as well as upgrades to existing central heating systems and insulation. It was aimed at approximately 150 privately owned households occupied by people over age 65 with incomes equivalent to or less than €30,000 per year in the Ballyfermot, Whitehall and Crumlin areas of Dublin. The intention of this scheme was to contribute towards the reduction in fuel poverty in Ireland and to facilitate older people to remain in their own homes and communities for as long as possible through associated health gains.

The Department of the Environment, Heritage and Local Government provided 80 per cent of the funding for this scheme, with Dublin City Council providing the remaining 20 per cent. In addition to this 20 per cent, Dublin City Council also took responsibility for the project management and administration of the pilot scheme project management and administration of the pilot scheme. The total cost of the scheme was €1,037,941. Energy Action Limited is a registered charity established in 1988 with the core objective of alleviating fuel poverty in Dublin through the provision of insulation in the homes of older people. Therefore Energy Action became involved in the pilot central heating and insulation scheme by not only providing insulation and energy-saving equipment, but also giving householders energy advice and carrying out energy audits.

The scheme was advertised in the national papers, and application forms were made available through Dublin City Council (see Appendix One) who also sent these forms to local councillors. When application forms were returned and approved, Dublin City Council and Energy Action Ltd surveyed applicants' homes to establish their requirements. Dublin City Council provided contractors for the works. Energy Action Ltd undertook energy audits of the houses both before and after (remotely) the works were completed and also provided energy advice, energy efficiency methods and smoke alarms. All successful applicants were asked to read and sign an agreement before work commenced. The agreement outlined the work that would be carried out and what was not to be included in these installations.

Dublin City Council agreed to the following –

- Install full gas central heating system
- Provide a gas fired condensing boiler
- Provide radiators throughout the house with thermostatic radiator valves (TRVs)
- Supply all necessary pipe work and fittings
- Provide a new insulated hot water cylinder with thermostat
- Provide a two channel time clock and motorised valves
- Provide a new feed and expansion tank in the attic
- Provide a new room thermostat

However, Dublin City Council would not –

- Accept responsibility for hardwood floors or tiles
- Agree to replace any other gas appliances
- Decorate
- Repair or service the new system after the warranty period
- Empty attics for works to take place; this was the responsibility of the home owner

Energy Action agreed to insulate the attic and draught-proof the home. Dublin City Council would provide a new fuse board, if necessary, and provide smoke alarms and heat sensors.

1.2 Pilot Scheme Evaluation

A key aspect of the pilot scheme was the incorporation of an evidence-gathering element to the initiative in order to assess the energy-efficiency impact on the properties of those who availed of the scheme and also the health and social gain impacts on the users.

Energy efficiency impacts

As stated above, Energy Action undertook a Building Energy Rating (BER) on all housing included in the scheme and followed up 78 of the houses upgraded to carry out a more detailed analysis of the impact of the work undertaken. The results of these tests are reported in summary form in Section 3 of the report.

Impact of the pilot scheme on users

The Centre for Housing Research was asked to evaluate the impact of the pilot scheme on those who availed of it. The aims of the evaluation were as follows:

- To provide a profile of the applicants
- To measure user satisfaction and benefits of the scheme
- To investigate possible health impacts
- To establish the impact on the users' home comfort

The evaluation findings are detailed in Sections 4 to 7 of the report, followed by the conclusions and recommendations (Section 8).

The next section of the evaluation, Section 2, provides some contextual information regarding fuel poverty in Ireland and the results of evaluations of similar schemes carried out in Northern Ireland.

SECTION TWO

Background to the Scheme

2.1 Policy Context and Evidence of Impacts

The World Health Organisation recommends that for at least eight hours a day, the principally occupied room of a home should be 21 degrees centigrade and all other rooms should be 18 degrees centigrade.[1] This temperature may need to be slightly higher and be maintained for longer for older and more vulnerable people. Many people in Ireland cannot afford to maintain this temperature or else do so at a financially unsustainable level, and therefore can be considered to be living in fuel poverty (McAvoy, 2007). Fuel poverty is generally accepted as the necessity to spend more than 10 per cent of the household income on fuel use in order to maintain an acceptable temperature level throughout the home.[2] A Sustainable Energy Ireland (2003) study notes that in cases where 10 per cent or more of the household income is required to heat the home, many simply choose not to heat the home as they cannot afford it. *NAPinclusion* (Government of Ireland, 2007:57) identifies fuel poverty as the inability to afford adequate warmth in a home or the inability to achieve adequate warmth because of the energy inefficiency of the home. Therefore, fuel poverty is associated with low income and energy inefficient housing. Fuel poverty can occur in cases where both of these factors are present, or when only one is present.

Aside from not having the means to keep their homes warm, low-income households are less likely to have freely available capital to make their homes more energy efficient. In these circumstances low-income households are required to spend more on keeping warm due to accommodation-based heat loss. If the infrastructure for gas or oil central heating is not available in the house, it is unlikely that low-income tenants or home owners will have the resources for the initial capital outlay necessary to install these more efficient heat sources, much-less install other energy-saving measures such as double-glazed windows. Although such measures would be repaid over the lifetime of the house, immediate financial gains would not be apparent and could be out of reach of low-income households. Brophy et al.'s (1999) study reported that low-income households are more likely to use dirtier and more uneconomic fuels such as turf or coal. Aside from being more expensive, these fuels are also more dangerous to the householder due to the nature of open fires. Dublin Fire Brigade, in communication with Dublin City Council (DCC), calculates that in 1997 there were approximately 812 chimney fires in Dublin. This was the first year that DCC began their major household renovations to their housing stock. In 2006, the approximate figure for Dublin chimney fires fell to 317, and it is anticipated that this figure in 2009 will be approximately 280.

1 World Health Organisation (1990) *Potential Health Effects of Climatic Change: Report of a WHO task group* cited in Rugkåsa et al. (2004)

2 This definition is used in Northern Ireland's fuel poverty strategy (2004)

Both medically and socially, living under the circumstance of fuel poverty can have a negative effect on the individual. Living in a cold environment can place the body under thermal stress and can contribute to, or cause, respiratory, circulatory or cardiovascular illnesses such as high blood pressure, asthma attacks and worsening arthritis. Cold and damp houses can encourage the growth of mould or the presence of dust mites which can irritate respiratory and allergic conditions. Brophy et al. (1999) estimate that 9.5 per cent of Irish households (106,000 units) experience damp. The fuel poverty household may become more socially isolated (not wanting people to visit, diverting money for fuel bills from other areas of the household budget, e.g. food), which can impact on mental health. Additionally, spatial shrinkage may occur; in other words, householders may reduce their household living area to the one or two rooms they can afford to heat.

Based on the premise that coronary heart disease and stroke occur more frequently due to thermal stress than diet or lifestyle, Lloyd et al.'s (2008) epidemiological study on a housing improvement scheme in two apartment blocks in Glasgow demonstrated the positive effect on blood pressure[3] of heating and insulation interventions compared to a control group. Lloyd et al.'s study also revealed qualitative data demonstrating improvements in asthma, sinusitis, childhood illnesses and arthritis for inhabitants in the four-year aftermath of the housing improvements. As well as these benefits, participants subjectively also reported their own felt health improvements. These authors noted the savings made for the National Health System in reducing the costs of hospital-days and medication.

Brophy et al. (1999) stated that Irish fuel poverty rates were among the highest in Europe and that Irish housing standards were among the lowest in Europe in terms of thermal efficiency. In addition, this report stated that excess winter mortality rates in Ireland were among the highest in Europe. This means that in comparison to other European countries, Ireland does not compare favourably in terms of the number of deaths over the winter months that can be attributed to cold indoor temperatures.[4] The report stated that the housing units with the lowest standards tend to be occupied by people with low incomes and that the proportion of income they spend on heating is three times higher than the expenditure share of the average household. Brophy et al. (1999) showed that Ireland's excess winter mortality compared very unfavourably with Norway's – a country similar to Ireland in terms of health profile but with more energy-efficient homes and more severe winters. Excess winter mortality principally affects people aged over 65 with low incomes, and the two main diseases associated with excess winter mortality are respiratory disease and cardiovascular disease when the influence of other factors such as smoking or poor diet are removed (Brophy et al., 1999).

Using data from Eurostat, a Sustainable Energy Ireland and UCD joint study (2003) reported that, between 1994 and 1997, 91,000 Irish households experienced persistent fuel poverty. Over this period there was a decline in persistent fuel poverty levels due to rising incomes and housing standards and, considering that the upper end of the time scale was over ten years ago, these levels have most likely dropped further. However, more recent rising fuel costs may slow this decline, compounding fuel debt among people already experiencing fuel poverty and potentially forcing people into it who previously were outside this category.

3 Blood pressure is an indicator for coronary heart disease and stroke risk.

4 Usually excess winter mortality rates do not specify if they are attributable to outside or indoor temperatures. However, this study attempted to extrapolate them and particularly refers to indoor temperature. In general, it is possible to link these mortality rates – if someone is particularly subjected to cold outside temperatures it is likely this will also be the same for the person's indoors environment. Living in a home without central heating was one of the strongest predictors of the variation in excess winter deaths in a study in the south of England (Wilkinson et al. 1998, cited in Rugkåsa et al. 2004).

The Central Statistics Office figures to May 2008 show an 11 per cent increase in the cost of home fuels in the previous 12 months. In a Sustainable Energy Ireland (2003) study, a UCD survey estimated that there were 62,000 households experiencing fuel poverty persistently in 2001, and 165,000 experiencing fuel poverty intermittently. The latter survey found a linear relationship between the incidence of fuel poverty and household income levels; there was a decline in fuel poverty when the household income exceeded €30,000 per annum. The 2007 survey on income and living conditions (EU-SILC) also showed a relationship between low incomes and higher poverty rates for households reporting inadequate facilities. This was most evident for households declaring that their home was not comfortably warm in winter, with an at-risk-of-poverty rate of 47 per cent compared with 18 per cent nationally and a consistent-poverty rate of 38 per cent compared with five per cent nationally. The biggest difference in household incomes between the state average and households reporting inadequate facilities occurred among households reporting they were unable to keep their dwelling comfortably warm in winter.[5] The Society of Saint Vincent de Paul (Ozanam Bulletin, Spring 2008) estimates that its local conferences spend up to 50 per cent of their total income on fuel-related costs for clients.

Therefore it is possible to observe that fuel poverty is principally associated with low incomes and vulnerable sectors of society, and its ramifications include impacts on health and well-being. Single person households, lone parents and older people are generally considered the groups most at risk of fuel poverty, as these groups may be at risk of inhabiting low-income households and living in inadequately heated and/or inadequately insulated housing. In economic terms, fuel poverty can impact the Exchequer in terms of the cost of medication and hospitalisation where health is affected by the cold.

The 2006 census revealed that three Dublin constituencies are below the national average (88 per cent) in terms of central heating installation. Dublin Central, South Central and South East have 6,572, 5,315 and 6,691 households respectively without any central heating. Coupled with these data, the 2006 census also reveals that 15.3 per cent of all the Irish population over 65 years live in Dublin city and of these 18,589 live alone. In a press release (18 June 2007), Ireland's Renewable Energy Skills Accel Project estimated that almost a million homes built before 1997 are poorly insulated and energy inefficient and that millions of euro are wasted each year heating energy-inefficient homes, affecting the most vulnerable such as older people and low-income households. In a recent Institute of Public Health publication, McAvoy (2007) notes that older people are more likely to inhabit older accommodation which, compared to new-build, is more likely to be in poorer state of repair and to not comply with current construction regulations. Thus, the risk of fuel poverty for vulnerable older households, particularly in the Dublin area where they may be concentrated, is apparent. McAvoy (2007) states that in Northern Ireland, the highest prevalence of fuel poverty is found amongst older people living alone, but at an all-Ireland level it is lone parents who are most likely to experience fuel poverty. This is not to suggest that fuel poverty for older people is unproblematic when the whole island of Ireland is taken into consideration, particularly when a lack of central heating and the concentration of older people living alone in Dublin city are taken into account.

As already mentioned, rising fuel prices may impact on the level of fuel poverty in Ireland. The increasing scarcity and uncertain supply of fossil fuels may drive up prices. Additionally, in the current circumstances of Ireland's requirements to meet Kyoto Protocol targets, it would be preferable to minimise reliance on fossil fuels. More energy-efficient homes would ensure that home-heating bills were maintained at a steady level or even reduced. As a knock-on effect this would help to either reduce or stabilise Ireland's carbon footprint. Ireland's target under the Kyoto Protocol is to limit total greenhouse gas emissions to 13 per cent above 1990 levels by the period 2008-2012. In 2006 emission levels were calculated to be 25.5 per cent above the 1990 level. This is an 0.8 per cent decrease on the 2005 levels – encouraging but still considerably above the target (information available: www.epa.ie).

5 The highest levels of inadequacy across four of the six facilities surveyed occurred in lone parent households.

The Government expressed its commitment to reducing fuel poverty in the Green Paper on Energy Policy in October 2006. The issue was further addressed, after public submissions, by the Department of Communications, Marine and Natural Resources in their March 2007 White Paper. This document stated that there are approximately 274,000 recipients of fuel allowance and that this allowance cost €161 million in 2007. An inter-departmental/inter-agency group was promised, to oversee and drive the coordinated delivery of all fuel poverty initiatives and programmes, to be chaired by the Office for Social Inclusion, and reporting to the Cabinet Committees on social inclusion and on infrastructure. In addition, €70 million was allocated (2007-2008) to install central heating in local authority rented dwellings. In short, the White Paper promised to continue to fund, drive and promote current schemes working to eliminate fuel poverty.

The Government's fuel allowance scheme supplements welfare income by granting additional payments during the colder months of the year. This scheme has been improved through raising the allowance, lengthening its duration and lowering the income threshold for eligibility. Beginning 2008, the fuel allowance is €18 per week for 30 weeks from the end of September. Eligible recipients of the fuel allowance who live in areas where they must use smokeless fuel (e.g. Dublin) get an additional €3.90 per week. There have also been improvements in electricity and gas allowances and some flexibility was introduced through the Community Welfare Service's (HSE) administration of heating supplement for people with an exceptional heating need. Other initiatives in this area include allocating funds to local authorities for installations of central heating systems into their housing stock, refurbishments of local authority rental accommodation through the Remedial Works Scheme, providing funds for research led by Sustainable Energy Ireland, providing funding to community-based organisations for the installation of energy-efficient measures for those deemed in need, as well as improved Social Housing Guidelines to improve energy efficiency from the outset of local authority construction (Government of Ireland, 2007; Department of Communications, Marine and Natural Resources, 2007).

The Institute of Public Health in Ireland (McAvoy, 2007) points out that supplementing income to provide fuel is a short-term solution to fuel poverty; the long term solution is to make the capital investment to improve energy efficiency in the home. This is supported by Sheldrick and Hanratty's (2004) *The Ballyfermot Residential Energy and Fuel Poverty Report* which also supports the long-term solution over any short-term measures. Through this, not alone would the experience of fuel poverty be reduced, but there would be less greenhouse gas emissions (and therefore lesser costs for internationally agreed 'green' taxes), not to mention a reduction in cost to the Exchequer caused by illness and excess winter mortality rates.

In Northern Ireland there have been at least two projects carried out similar to the scheme under investigation here – the 'Warming Up' project in Castlereagh, South and East Belfast, and the 'Home is where the Heat is' project in the Armagh and Dungannon Health Action Zones. Both were evaluated by the Institute of Public Health in Ireland. The 'Warming Up' project provided 218 intervention measures for older people's homes. Thirty-nine units had gas central heating installed and 67 received insulation measures. In addition to this package, the project also provided information about entitlements. Prior to the intervention, older people in this qualitative evaluation described how the indoor climate affected their well-being and their quality of life. Interventions benefited households financially, both in terms of heating costs and activation of benefit entitlements, and there was some reference to improvements in conditions that can increase mental well-being and social inclusion. The use of a project worker providing information and facilitating capacity-building was considered an advantage of this particular scheme, but the lack of flexibility in providing interventions for people just over the eligibility threshold was frustrating for workers in the field.

The 'Home is where the Heat is' project had a broader base, in that it provided interventions for families and single person households – the majority of this latter group were people over 65 years of age. Under this scheme 65 households received a full intervention package of central heating, roof and wall insulation and other energy efficiency measures such as new electrical appliances. A further 224 households received some of these measures. The evaluation included temperature monitoring in 14 of the 65 households who had received the full package of interventions. Although some households receiving this full package could still be considered relatively cold after intervention, the temperatures after intervention are spread over a narrower range, indicating better control of heat. Despite what is possibly a household economy measure, there was a marked decrease in the presence of condensation, mould and damp in houses receiving the full intervention package. In terms of health, the average number of illnesses reported per head in these households significantly decreased, as did the average number of reported health service visits. Households receiving the full intervention package also reported a significant increase in indoor temperature satisfaction, considerable improvements in comfort, and overall high levels of satisfaction with the programme. However, the principal limitations of this research as stated by the evaluators were that both medical data and household temperature data should be monitored over a longer time period. It proved impossible to establish a causal pathway between the intervention and health status, and it would be beneficial to establish if the household temperature not only stabilised, but also rose, as householders became familiar with the system and their bills.

A recent evaluation of the Warmer Homes Scheme (a scheme operated by Sustainable Energy Authority of Ireland to improve energy efficiency and comfort conditions of homes occupied by low-income households) found that the scheme had a significant impact on reducing fuel poverty, with those availing of the scheme reporting being better able to afford to heat their homes in winter to a comfortable temperature, a significant decline in the proportion not using rooms in their home because they are not heated or too cold, and a significant decline in the number of participant households finding it difficult to pay their utility bills on time. The evaluation was based on 600 households – 257 who had availed of the scheme and 343 comparison households (who did not avail of the scheme) in Cork City and County Donegal. The evaluation also drew attention to the difficulties in measuring health gain, particularly over a short period of time (Social Market Research, 2009).

2.2 Conclusion

In light of the literature presented here, as well as national commitments to reducing fuel poverty, the relevance of this pilot scheme is apparent. Fuel poverty may have considerable health, social and economic consequences for older low-income home-owners who may not be in a position to maintain, update or install more efficient central heating systems or insulation measures.

SECTION THREE

Analysis of Energy Action Data

3.1 Summary of Energy Action Data

An important aspect of the evaluation was to assess the impact of the work undertaken on the energy efficiency of the homes included under the scheme. These tests were conducted by Energy Action by way of an energy audit of the houses before and after the works were completed. This section reports on the findings from this work, and is taken from Energy Action's report (23 December 2008).

Energy Action's overall conclusion was that the pilot central heating and insulation programme will have significantly improved comfort levels for the householders that participated in the programme and should in many cases have reduced heating bills due to the installation of more efficient heating systems.

Firstly, all houses were audited in the 'before' state to determine their energy rating before any measures were carried out. The onsite surveys data were entered into SEI's Dwelling Energy Assessment Procedure (DEAP) software (version 2.1.2) to determine their Building Energy Rating (BER) scores. The BER scale is indicated on an A to G scale of kWh/m²/annum. All dwellings with an energy value in excess of 450 kWh/m²/annum are afforded a G rating. Because many of the dwellings audits were found to have very high energy values due to the absence of central heating systems and poor insulation, the rating scale was increased in increments of 75 kWh/m²/annum up to the letter Q and an upper limit of 1,275 kWh/m²/annum.

All dwellings were upgraded with attic insulation (minimum depth of 200mm) with 50mm insulation on the loft hatch, draught-proofing of the loft hatch and external wooden doors and windows and all dwellings were provided with four energy-saving light bulbs (CFLs).

All dwellings also had new central heating systems installed comprising a gas condensing boiler (90.1 or 90.2 per cent efficient), radiators with thermostatic radiator valves (TRVs), a 130-litre hot water cylinder with 50mm spray foam insulation, a hot water cylinder thermostat, a room thermostat (thus providing a boiler interlock) and a programmer/timer.

Two dwellings were found to be of cavity wall construction. In these two cases, insulation was pumped into the empty cavity walls. All other dwellings had solid wall construction but insulation of the walls of these dwellings was outside the scope of the programme.

The average energy values per dwelling improved from 527 kWh/m²/a before the measures were implemented to an average of 242 kWh/m²/a after the measures were installed. This represents an improvement in the average rating from a H (on the extended scale) to a D1.

The average carbon dioxide emissions per dwelling improved from 10.1 tonnes of carbon dioxide before the measures were implemented to 4.2 tonnes of carbon dioxide per year after the measures were installed. The total carbon dioxide saved averaged approximately six tonnes of carbon dioxide per dwelling per annum or over 900 tonnes of CO_2 for all dwellings upgraded via the programme.

A typical dwelling with annual CO_2 savings of 8.5 tonnes was examined further to determine the associated lifetime carbon dioxide savings. The lifetime CO_2 savings for the typical dwelling were calculated to be 150 tonnes using the lifetime lengths of the UK CERT programme. Based on a price of €15 per tonne of carbon dioxide, the lifetime carbon credit saving from this typical dwelling would be €2,250.

If we roughly calculate the savings for the 150 dwellings that received measures as part of the programme by scaling up based on this typical dwelling, the total carbon credits would amount to €338,000 based on lifetime carbon dioxide savings of 22,520 tonnes.

It should be noted that the carbon dioxide savings per measure for the typical dwelling from the pilot programme are larger than those standard savings listed in the CERT template. For example, under CERT, when loft insulation is increased from less than 60mm to 200mm, the saving for a 3-bedroom mid-terrace house is 339 $kgCO_2/a$ or 13.6 $tkgCO_2$ lifetime savings. However, the carbon dioxide saving for the typical dwelling from attic insulation within this pilot project, was calculated to be 1,718 $kgCO_2/a$ or 68.7 $tkgCO_2$ lifetime savings, i.e. six times greater than under the CERT programme. In fact, the total lifetime carbon dioxide savings for the typical house amount to 71.2 tonnes using the CERT calculator compared to 150 tonnes using the savings calculated by the DEAP method. The equivalent carbon credit using the CERT calculated savings amounting to €1,065. However, it is worth noting that there is currently no Irish equivalent to the UK CERT calculator.

The total cost of improvement measures for the 159 dwellings upgraded under the entire project amounted to €1,037,941. If the cost of the improvement measures per dwelling is compared to the lifetime carbon credit resulting from those measures, the payback in terms of carbon savings based on the DEAP calculation would be less than 3 years. If the (UK) CERT calculator is used to estimate the lifetime carbon savings, a lower savings value of €1,065 was calculated. Using the CERT calculated value, the payback would be 6.2 years approximately.

The average running costs per dwelling were reduced from €1,650 per year to €936 per year after the measures were installed (based on the assumed heating patterns and usage levels within the DEAP software). However, as the fuel and energy unit costs in the DEAP 2.1.2 software have not been updated since late 2006, the running cost data can only be considered indicative.

More detailed analysis was also conducted on 50 per cent of the dwelling upgrades (i.e. 78 dwellings) using the Datamine analysis tool. Energy Action, supported by Dublin City Council, was the Irish partner in the EU Intelligent Energy Europe Datamine project. Seventy-eight dwellings were assessed both before and after using the Datamine analysis tool. This enabled a substantially more detailed analysis of the building energy rating calculation to be produced, showing the relative impact of the various heating and insulation measures.

The insulation measures have reduced fabric losses somewhat and thus reduced the net space heat demand. However, more significant reductions would be achieved if wall insulation measures were also adopted. The upgrading of the water heating cylinder and hot water and space heating controls each make a significant impact. Probably the greatest impact has been achieved by the improved efficiency of the heat generators (i.e. central heating boilers).

SECTION FOUR

Evaluation Methodology and Profile Information

4.1 Introduction

This section of the report describes the evaluation methodology and provides profile information on successful applicants.

4.2 Evaluation Methodology

The first step of the evaluation was to analyse the application forms sent to Dublin City Council by successful applicants. Information was gathered in relation to: age, household composition, incomes and current heating arrangements, and is reported below.

The next stage of the evaluation was to administer a questionnaire to 66 of those who took up the scheme. In choosing to contact households, attempts were made to have an even spread of householders over the three areas, and to over-sample households who previously had no central heating. The reason for over-sampling was because there were fewer of these households and these were the households who would potentially experience the greatest change resulting from the scheme.

Table 4.1 provides details of the area-spread as well as the breakdown of what was provided. 'Full' refers to having a full new central heating system installed where there had not previously been one, and 'upgrade' refers to the upgrading of a household central heating system where one had already been in situ. All households would also have received energy advice, insulation and some energy-saving devices and installations. The table shows that 25 households were visited and completed questionnaires in Dublin 9, 24 households in Dublin 10 and 17 in Dublin 12. In total, approximately a third (21 cases) of these households had not previously had a central heating system, but two-thirds (45 cases) had an existing system that needed to be upgraded to a better system.

Table 4.1 Sample by location and completed works, number

	Works Completed		
Area Code	Full	Upgrade	Total
9	3	22	25 (38%)
10	10	14	24 (36%)
12	8	9	17 (26%)
Total	21 (32%)	45 (68%)	66 (100%)

Comparing the sample profile in Table 4.1 to the total population of successful applicants (Table 4.3 below) it can be seen that the geographical spread of the sample matches that of the total population, but as previously explained a slight over-sampling of those who received a full new heating system is evident.[6] Table 4.2 provides further comparison between the sample and full population and indicates that the sample population would seem to be generally representative of the full population.

Table 4.2 Comparison of total population and sample

Indicator	All Successful Applicants	Evaluation Sample
Gender:		
Proportion female	62%	63%
Average age:		
Males	73.79 (years)	72.7 (years)
Females	73.58 (years)	72.95 (years)
Household size:		
Lived alone	63%	66%

6 When these relationships are tested for their representation, it is found that the post-code spread in the sample is not significantly different from the larger population [$x^2(2)=5.72$, $p>.05$]. However, there is a significant difference between the 'full' and 'upgrade' breakdown of the sample and the larger population [$x^2(1)=127.56$, $p<.001$]. Successful applicants who were provided with a 'full' installation were deliberately over-represented due to their smaller numbers; by considering these respondents separately it is hoped to overcome this bias.

The fieldwork was carried out using face-to-face interviews. Fieldworkers called to the house by appointment with the older person and read out the questionnaire (see Appendix Two) using a conversational approach. Any qualitative comments were also recorded. The first time-point questionnaire was divided into four sections, addressing the following:

- The home environment and heating management and satisfaction prior to the scheme
- The application process and installation experience
- How the heating (or lack thereof) affected their behaviours and health
- The financial impact of their older system and if they would have been able to contribute towards the scheme had that been necessary

At the end of the interview process, householders were asked if they would be willing to allow the fieldworker contact them again for the later survey time-point. It was highlighted that in answering yes they were only answering with regard to contact; this did not automatically mean they would be obligated to partake again.

A second questionnaire was administered to those who agreed to be re-contacted and who were contactable (60 older people) several months after the heating and insulation work was completed. At this stage, households had several months to get used to their new systems, and had experienced some cold weather during this intervening time which fell over the winter months – thereby establishing effectiveness, satisfaction and cost. This round of interviews was conducted over the telephone.

The second time-point questionnaire followed a similar pattern to the first time-point questionnaire, asking about:

- The home environment and heating management and satisfaction since the new systems were installed
- The experience of taking part in the scheme
- How the new systems have affected their behaviours and health in the intervening time
- The financial impact of their new systems

At both time-points, the older people involved were sent letters and given advance notice that they would be contacted. They were given the opportunity to decline to take part at each contact point, and assurances about confidentiality were made. It was highlighted that partaking in the evaluation, or refusing to do so, would not in any way jeopardise their application.

4.3 Evaluation Constraints

There are two principal caveats to this evaluation. First, responses are based on subjective attitudinal commentary provided by successful applicants and therefore may not always be entirely accurate. However, as these are the target client group, their subjective input and experiences are as important as independent quantitative testing since it is through the customer that we can learn about quality of life and usability associated with the intervention. Second, as with the Institute of Public Health evaluation of the 'Home is where the Heat is' project, it will be impossible to establish a causal pathway between household conditions, interventions and health status. For example, the presence of respiratory illness can be attributable to a history of smoking as well as inhabiting a fuel-poor household.

A small-scale evaluation would not be able to extrapolate compounding variables such as these from the data. Additionally, many of these older people may suffer from long-term chronic illnesses which will not dissipate with the improvement in household temperature (and indeed, they may acquire more medical conditions in the period between questionnaires). Therefore for the purpose of this evaluation, the focus will principally be on perceived quality of life improvements rather than improved health outcomes.

4.4 Profile of People who took up the Scheme

This section will give a brief overview of successful applicants to this scheme using data provided on their application forms. Therefore, these data are based on self-reported information and have not been independently verified for this evaluation.

In total there were 159 applicants who benefited from this scheme. This evaluation had information on 148 of these applicants. As Table 4.3 shows, 54 successful applicants (36 per cent) had addresses in Dublin 9, 58 (39 per cent) were in Dublin 10, and 37 (25 per cent) had addresses in Dublin 12. Forty-one successful applicants (28 per cent) had new systems installed where there had not been any previous central heating; 108 households (72 per cent) were upgraded via this scheme.

Table 4.3 Dublin area code and completed works

	Works Completed		
Area Code	**Full**	**Upgrade**	**Total**
9	9	45	54 (36.5%)
10	18	40	58 (39.2%)
12	14	22	36 (24.3%)
Total	41 (27.7%)	107 (72.3%)	148 (100%)

Within these 148 households were 120 women and 75 men. The mean male age was 73.79 years. There were two women who did not provide their ages, but of the remaining 118 the mean age was 73.58 years.

About two-thirds of those who availed of the scheme reported that they lived alone (94 cases). Of the remaining third, most (40 cases) were cohabiting with their spouse, and a small number said that they had one of their children (9 cases), or their spouse and a child (2 cases), or another relative (3 cases) living with them in the household. No household consisted of more than three people. It appeared that where offspring were residing in the household these individuals were principally in receipt of welfare benefits, usually in the form of disability allowance.

From the administration files, and excluding five cases where information was not available, about half of the houses (78 cases) had three bedrooms, with two-bedroom properties making up most of the reminder (57 cases). Just six households reported having one bedroom and two households reported having four bedrooms. Similarly proportioned, 73 households reported having three living spaces (this would include a living room/dining room/kitchen/conservatory but not bathrooms, toilets or utility rooms); 68 applicants reported having two living spaces. Two households stated they had just one living space, and two households reported having four or more living spaces. There were three missing cases.

Not surprising, the majority of householders reported that they were reliant on pensions as their main source of income. There were ten households who were still working or were reliant on a state disability/lone parent allowance. As spouses would tend to share household expenses, their incomes were calculated together, but if there was another household member who was either a relative or child, their income was recorded separately as this was not necessarily absorbed into the common household coffers. Information was provided in nine cases – four 'other' householders earned approximately €185 per week, three earned €190-200, and two earned on average €208.50.Head(s) of household reported a minimum income of €121.70 per week, rising to a maximum of €611.06 per week. The average (mean) income of all applicants was €303.90 per week, but the median response (the response that is least affected by outliers) shows the average weekly income at €248, with the most frequently cited response being €217 per week.

For applicants living alone for whom information was available (89) the minimum income was €121.70 per week, up to a maximum of €568.88 per week, with €252.65 being the mean income for lone householders. In the case of married couples for whom information was available (38), the minimum weekly income was €325 up to a maximum of €611.06, and a mean weekly income of €426 (median=€414.50).

Table 4.4 shows the mean incomes by household type.

Table 4.4 Mean incomes per houshold type

	Average Weekly Household Income
Living alone	€252.65
Husband and wife	€426
All households	€303.90*

*Figure does not include income of additional family member(s) residing with household head(s)

About one-third of successful applicants (49 cases) reported they had previously received a grant for works carried out in their home. The types of works provided for under these earlier schemes, although very small in number, were frequently associated with disability, with applicants receiving stairlifts and accessible toilet and bathing facilities. However, the most frequently cited reasons for receiving a grant previously were for replacing windows (12 households) and rewiring (eight households).

Table 4.5 Sources of heating in winter described by respondents, number

	Main heat source	Secondary heat source	Any other heat source used
Older gas/oil system	32	--	1
Open fire	8	4	1
Open fire and back boiler	2	--	1
Electric fire	4	10	1
Gas fire	4	7	--
Gas fire and back boiler	3	3	--
Electric/blow/free-standing heater	6	16	2
Storage heater	6	1	--
Other	1	--	1
Total	66	43	7

A little over half of those who used this scheme reported on their application form that they already had a gas central heating system installed (81 cases). The next most common form of heating was storage heating, with 13 successful applicants stating this was the form of central heating they had installed. In general, applicants estimated that their current central heating system (where present) was installed approximately twenty years earlier. Only 48 successful applicants reported that they had some attic insulation and again this tended to have been installed some time earlier – the most popular answer here was that the attic insulation had been installed 20 years earlier.

Those interviewed during the evaluation were asked in more detail about their heating system prior to the works being undertaken. Table 4.5 reports on the findings. It should be noted that the table reflects the actual usage of heat sources by the sample, as opposed to what is installed in their house. To clarify, although surveyors might regard a house as requiring an upgrade to a system, if that system has been faulty, inadequate or too expensive to maintain, the householder might not choose to use the system. Instead, the householder might rely on, for example, an open fire and free-standing heaters in the main living areas to keep warm. As with all applicants, the table shows that an older gas or oil heating system was by far the most prevalent main heating source – used by almost half of respondents.

4.5 Experience of Applying for the Scheme

The following draws on the interviews to report how applicants became aware of the scheme and their experiences of applying for it.

The two main sources of information regarding the scheme were: through a public service representative (a local political representative or Citizen's Information Board, for example) in 29 cases (44 per cent) and through an informal contact – word of mouth in the community – in another 29 cases (44 per cent). Four people read about the scheme in a church newsletter, and just three read the newspaper advertisement about the scheme. None of the 21 households receiving a central heating system where there had not previously been one had read the newspaper advertisement. Almost a quarter of respondents (15 cases) stated that the only reason they applied for the scheme was because their heating system needed upgrading or replacing. Other reasons included combinations of being available, being needed, because it was free and/or a desire for insulation. However, there were 34 households in this sample who had their central heating installed prior to 1989; therefore it is likely that at least some upgrading was required in each case, even if not identified as such by the respondents themselves.

Respondents stated that when they applied for the scheme they hoped for a warmer home and a better heating system – where 'better' meant more convenient and more efficient. Just one respondent stated that they wanted to add value to their house for the purpose of inheritance for their relatives. Respondents frequently cited how guests commented that their houses were 'freezing', with at least two respondents describing a private family joke referring to rooms in the house as 'the fridge'. Although respondents did not often allow the temperature of their homes to direct their day, some did report gearing their day around when the heating would be on. For example, people would report going for walks while the house was warming up, or getting back into bed after they had washed their hair. Respondents also mentioned going to bed when the house was beginning to get colder in the evenings instead of turning the heating/heat source back on. Additionally, many older people were wearing extra layers of clothes around the house – mainly jackets – and had extra blankets on their beds or in their living areas. One woman reported sleeping downstairs on a sofa in the winter as it would be warmer there than in her bedroom. Another woman recalled how she did not dust some rooms of the house as they were too cold to enter and another woman described how she would put her coat on to use the toilet as the bathroom was so cold.

The application form was unproblematic for almost all the sample. Almost three-quarters (74 per cent, 49 respondents) said they filled out the form by themselves and the remainder had a relative, friend or staff member from a Citizen's Information Board help them with it.

The next section of the evaluation reports on the experiences of those who previously had no central heating scheme and then Section 6 reports on those who received an upgrade to an existing scheme.

SECTION FIVE

Experience of households who previously did not have central heating

5.1 Introduction

As outlined in Table 4.3 above, of the 148 households for whom details were available, 41 applicants who availed of the pilot central heating and insulation scheme had not previously had a central heating system in their current home. Of these, 21 households completed questionnaires as part of the evaluation.

This section will outline what it was like for respondents prior to availing of this scheme – in terms of their experiences of keeping warm and their health, after first briefly describing this sub-sample.

5.2 Demographic Overview

The average male age in this sub-sample of 21 households was 71.67 years and for women it was 74 years. Fifteen households comprised one person, and four households comprised a married couple; a further two households had a parent living with a child. The average weekly income in this group was €304.75. For single-person households the average weekly income was €260.81 and for a couple the average weekly income was €376.08. For a parent and child living together the average weekly income was €331.05. Households tended to be physically slightly smaller than those of the people who had upgrades conducted – with 14 households having two bedrooms, and 13 reporting they had two other living space-rooms (utility rooms, bathrooms and WCs were not included). Seven respondents had previously received grants.

5.3 Household Heat prior to the Scheme

Respondents were asked to describe the temperature of their home in winter. Nineteen respondents (90 per cent) described it as cold, very cold or freezing. One respondent described the temperature as about right, and one described their household as warm. No respondent described their household as 'too warm'. Eighteen respondents (85 per cent) stated that in winter they were dissatisfied or very dissatisfied with the temperature of their home; three people were satisfied. During the remainder of the

year respondents' satisfaction with the temperature was divided almost in half, with 11 respondents reporting to be satisfied with the temperature of their homes and ten stating they were dissatisfied or very dissatisfied. When asked about draughts, mould, condensation and damp, the most common complaint was draughts. Four-fifths (17 respondents) experienced draughts, seven reported condensation, nine reported damp, and just three reported mould. Therefore, almost all households in this smaller sample experienced draughts and almost half experienced damp. These conditions were found all over the house. Prior to the installations, just four of these households reported having any type of insulation – all of which had attic fibre-glass.

As might be anticipated in houses that did not previously have central heating, households relied on storage heaters, free-standing heaters, gas/electric/solid fuel fires and back boilers to keep warm. In twelve cases households used more than one of these to keep warm. The most popular location for these heat sources was the living room. Three households with a solid fuel fire reported being bothered by fumes or dust, and two households found cleaning the grate troublesome. Fifteen reported having an immersion, two had a back boiler to heat their water and four households heated water as it was required with a kettle. Fourteen households always had enough hot water for their needs, six sometimes ran out of hot water when it was needed and one household reported never having enough.

Half the sample (11 respondents) said they turned on the heating or put on their fires as soon as they got up in the mornings on a cold day. Three had their heating on a timer so it was on before they got up. The remaining households put on the heating throughout the day as it suited them. When asked what time the heating was turned off, this also unexpectedly varied from within a few hours (6 households), in the evening (5 households), to night-time (5 households), with two others stating it varied and two households leaving the heating on all night. Half of these households (11) had their heating on intermittently throughout the day, while eight stated the heating was left on all day. Two households did not have the heating on all day when it was cold. Respondents reported that their houses would heat up from within 15 minutes to a few hours, but spatial shrinkage was apparent, with almost all households (19) reporting that they spent most of their time in rooms that had heating.

In contrast, over half of the households (12) reported that it was easy to maintain the heat throughout the day, with the remaining nine stating it was difficult or very difficult. Respondents did not allow the lack of heat to affect their day-to-day lives; no one in the sub-sample said they ever avoided having visitors due to the temperature of their home, and only three stated that it affected the time they went to bed. However, half of these households (11) took two or more measures to ward off the cold in winter, e.g. eating soups or stews, using draught excluders, closing doors; but the most commonly cited measures taken were to wear more clothes, use more bedclothes and use blankets in the living area. Four people in this sub-sample did not take any additional measures.

Heating Costs

Respondents were asked about their heating bills and the following figures are based on respondents self-reporting (i.e. not on bills or receipts). This self-reporting may also include costs of lighting and other appliances. Seven households reported that their weekly solid fuel bills in winter were approximately €24.32, nine households reported that their weekly electricity bills in winter were €26.38, and three households reported that their weekly gas bills in winter were €23.95. The average monthly expenditure on these bills in winter was €130.89. It would appear that among this sub-sample there is a tendency to obtain their free fuel allowance for electricity rather than solid fuel or gas, and all the free units would be used up per each billing period.

Three-fifths of these respondents (13) said they were not concerned about the cost of heating their home and just two households reported occasionally cutting back on their heating due to cost.

5.4 Respondents' self-reported Health

Respondents stated they were in good health – with householders or heads of households all reporting fair to excellent health. However, there may be a tendency for older people to report general good health which may not concur with medical records (HESSOP II, 2005). Of the list of illnesses commonly associated with the cold, these were not frequently cited within this sub-sample. There was only one household where eczema was reported, five said they had bronchitis, two said they had experienced pneumonia, eight reported experiencing stress or mental illness, eleven said they had blood pressure problems and ten reported heart problems. Ten respondents had arthritis/rheumatism – and nine reported this got worse in the cold. Therefore half of this sample had at least one householder experiencing blood pressure problems and/or heart problems.

Of the list of respiratory illnesses, three households reported experiencing at least one of these, with colds, flu and chest infections being the most common. Ten respondents had at least one other health concern, such as thyroid problems (3), cancer (2), allergies (1) and other general health problems (5).

Almost all respondents (19) had a medical card; about two-thirds (14) said they used their GP service to the same extent year round. Only five respondents used these services a little or a lot more during the colder months of the year.

5.5 Respondents' Feedback

The households who received a 'full' central heating system were generally satisfied with the scheme. Nineteen households felt the works were completed in a reasonable time/quickly/very quickly. One respondent stated that the works were not completed quickly enough. No respondent stated that the works caused too much disruption, although two did state that it caused a little disruption. Fourteen households stated that it caused no disruption at all, and four stated that it caused a little disruption but that this did not bother them. One household stated the installation caused a lot of dirt and mess, four households thought the works created a little dirt and mess which was mainly cleaned up by the contractors, and half this sample (11) thought there was dirt and mess but the contractors cleaned it all up. Five households thought there was no dirt or mess.

In terms of security, these householders were not nervous – almost the entire sample (20) stated that it did not cross their minds to be nervous, with just one respondent stating that they were not particularly nervous.

Despite not previously having a system, two-thirds (14 households) reported the instructions as being very straightforward, with six requiring some instruction; only one household found the instructions too difficult to understand. Almost all households (19) described using the system as easy or not a problem. Fourteen households had no concerns about the new system, three were concerned about the cost, and two were a little wary of gas. One household was worried about who would service it, and another household was worried they were not using the system correctly.

In terms of the energy advice prior to the installation, thirteen found it somewhat or very useful. Five households found it not particularly helpful, or not helpful at all. This was mirrored in the post-installation energy advice, with the majority finding it somewhat or very useful – with two households not recalling receiving any advice, three stating it was not particularly useful and one respondent stating it was not useful at all.

When asked, three-fifths (12 respondents) said they would have been willing to contribute towards the costs of the work undertaken, although similar to the 'upgrade' sample as will be seen, they were unsure how much they would have been able to afford or how much of a loan they could have got. Five households would have been willing to contribute under €500, one household could have contributed €500-€1,000, two households would have been willing to contribute €1,000-€3,000, with just one respondent in a position to contribute over €3,000. Almost all households (19) would recommend this scheme to others, one household stated it would depend on the person, and one household would definitely not recommend it.

SECTION SIX

Experience of households who upgraded

6.1 Introduction

As outlined in Table 4.3 above, of the 148 households for whom details were available, 107 availed of the pilot central heating and insulation scheme to upgrade their existing scheme. Of these, 45 households completed questionnaires as part of the evaluation.

This section will outline what it was like for respondents prior to availing of this scheme – in terms of their experiences of keeping warm and their health, after first briefly describing this sub-sample.

6.2 Demographic Overview

The average male age in this sub-sample of 45 households who received upgrades to their existing central heating systems was 73.08 years (24 males). For women, the average age was 72.49 years (39 females). Twenty-nine people in this sample lived alone, and sixteen lived with their spouse. The average weekly income in this group was €325.18. The average weekly income for people living alone was €268.36; for cohabiting couples the average weekly income was €412.09. Respondents had slightly larger houses than respondents in the 'full' sample, tending to report three bedrooms and three living space-rooms in their houses. Of these respondents, 16 had received grants previously but 29 had not.

6.3 Household Heat prior to the Scheme

A consistent theme across the sample was that their current heating systems were not only unsatisfactory, but were getting older and in need of repair. However, parts were not available for older faulty systems in many cases and respondents were concerned how they would pay to replace these systems. For other respondents, there was concern that they were growing older and would not be able to remain in their homes with the current heating situation as they expected to grow frailer as time passed. In this context, respondents referred to the scheme as being like 'manna from heaven', or 'it's like a bloody miracle'.

In winter, prior to the upgrade works, a little over a quarter of respondents (13) described the temperature in their home as 'about right', while two-thirds (31) described it as cold to freezing. Only one respondent described it as warm and no one described their home as too warm. Just under two-thirds of households (29) described themselves as being dissatisfied or very dissatisfied with this temperature during the winter, with just over a third (16) reporting being satisfied or very satisfied. Out of the winter months, satisfaction with home temperature was much higher, with three-fifths (27 respondents) satisfied, while two-fifths (18 respondents) were dissatisfied during the remainder of the year.

When asked about draughts, mould, condensation and damp, three-quarters of respondents (34) reported that there were draughts in their home, and 20 reported damp. Condensation and mould were less common, with 15 and 11 households respectively reporting these conditions. These conditions were experienced mainly downstairs or in several different parts of the house. Despite having central heating systems, the possible inefficiency of these is demonstrated in that over half of these households (25) reported spatial shrinkage – in other words they spent more time in parts of the house with better heating. Therefore houses were unlikely to be uniformly warm, and people would concentrate in the rooms that had supplementary heat sources.

Four-fifths (36) of households said they obtained their hot water from their older central heating system and/or immersion heater. Six stated they relied on a back boiler and one household did not store water – instead it was immediately heated on site. Of these 45 households, almost two-thirds (29) reported that they always had enough hot water for their needs, while just under a third (14) sometimes ran out of hot water when it was required, and two households stated they never had enough hot water. In the main, households which were being upgraded supplemented their central heating system with free-standing heaters or gas fires. For the small number of respondents in this sub-sample who had open fires (8 households), fumes, dust and difficulties cleaning the grate were reported. However, obtaining the solid fuels was not yet problematic as some help was already available due to door-to-door deliveries.

Very few respondents (7) reported that they had their heating on a timer so that it would be on before they got out of bed. Most (27) reported that they put the heating on as soon as they got up, with the remaining respondents putting the heating on at different times throughout the day that better suited their schedules. On a typically cold day, 17 households left the heating on all day and 26 households turned it on and off intermittently. In general, households had the heating on for at least a few hours over the course of a day and turned it off at night-time.

Two-thirds of respondents (30) stated that once they turned on the heating the house would be warm within an hour. However, 60 per cent (27) of respondents described maintaining this heat as difficult to very difficult, while 40 per cent (18) of respondents described it as easy to very easy. Respondents did not allow the heating affect their day, with only two people reporting that they went back to bed frequently or always until the house warmed up in the mornings, and only six respondents reporting that they went to bed early due to the temperature of their home. Additionally, the temperature never impinged on having visitors, with almost all householders (43) stating that they never avoided having visitors because of the temperature of their homes, and only two households saying they did so occasionally.

Householders supplemented their heating systems by other means, the most common of which was to wear more clothes around the house, have more bedclothes or keep blankets in the living areas to wrap around themselves when sitting still.

Heating Costs

Respondents were asked about their expenditure on heating; this is self-reported and did not draw directly from any bills. In addition, when based on bills, these would include the cost of running appliances such as lights, fridges, ovens, etc. Thus, the following figures are not necessarily precise but may provide some insight.

Of the respondents who received a gas bill prior to the upgrade works and could recall a figure for the fieldworker, the average weekly household expenditure for gas was €30.41 in winter. For electricity, estimated average weekly expenditure in winter was €20.13 and for the four people who could recall their weekly solid fuel costs in winter, the average expenditure was €29.08. In total per month, households in this sub-sample spent on average €134.68 on fuel in winter-time.

Over one-third (17) said they worried about this cost, but only one household reported frequently cutting back on heating due to cost. Five households reported occasionally cutting back due to cost, and 39 stated they never cut back due to cost.

6.4 Respondents' self-reported Health

In general, respondents in this sub-sample of people who received upgrades to their existing household systems considered themselves in good health. As mentioned in Section 5, there may be a tendency for older people to report general good health which may not strictly concur with their medical records (HESSOP II, 2005). Only six household heads reported their health as poor or very poor, with the remainder describing their health as fair to excellent. Table 6.1 lists illnesses commonly associated with the cold and their presence among this sample. In total, there were 61 people in this upgrade sample, living in 45 households.

Table 6.1 Common 'cold' illnesses

Arthritis / Rheumatism	Blood Pressure Problems	Heart Problems	Bronchitis	Stress / Mental illness	Pneumonia	Asthma	Eczema
46 (75.4%)	41 (67.2%)	28 (45.9%)	20 (32.7%)	20 (32.7%)	6 (9.8%)	6 (9.8%)	2 (3.2%)

Note: figures include more than the number of households as there was sometimes more than one person per household and because householders could suffer from more than one illness.

Arthritis/rheumatism was the most commonly experienced listed illness in this sample, with 40 individuals who experienced it stating it got worse in the cold weather. When specified, heart problems mainly included heart attacks, angina, cholesterol problems or blocked arteries (14). Therefore, illnesses associated with the cold were common among this sample of householders, but may have been caused or exacerbated by other variables not being considered or being outside the scope of this evaluation.

Respiratory illness and headaches are frequently associated with cold weather, and respondents were asked if they frequently experienced any of these as detailed in Table 6.2. The flu injection was frequently mentioned by respondents. Respondents were also asked to list any other health problems, and 30 households reported at least one other health problem. These included:

- Diabetes (6)
- Hernia (5)
- Osteoporosis (4)
- Thyroid (3)

- Pleurisy (2)
- Leg ulcers (2)
- Cancer (2)
- Crohn's disease (1)
- Several other medical problems (5)

Forty-two households of this sample of 45 had medical cards, and over two-thirds of these households (31) reported that they saw their GP with the same frequency year round; only six reported seeing their GP more frequently during cold periods.

Table 6.2 Respondents' experiences of respiratory illness

Colds	Flu	Wheezing	Headaches	Chest infections	one of these
6	1	1	3	4	14

Note: Multiple responses by multiple householders are included in this table

6.5 Respondents' Feedback

The 45 households who received an upgrade to their existing system were generally satisfied with the scheme. The majority (38 respondents) stated that the works were completed very quickly or quickly, five felt the works were completed in a reasonable time, and two respondents felt the works were not completed quickly enough.

Over a third (17) of respondents said that the works did not cause any disruption at all and the same amount stated it caused a little disruption but that it did not bother them. Six respondents said that it caused a little disruption, and five stated that it caused too much disruption.

A fifth of respondents (9) stated that there was no dirt or mess created by the works, 19 respondents said that there was some dirt and mess but the contractors cleaned it all up. Ten respondents stated that there was dirt and mess but the contractors cleaned most of it up, four respondents stated that they had a little cleaning to do after the contractors left. Three respondents stated that there was a lot of dirt and mess left behind.

In terms of security, respondents were not overall made uncomfortable by the strangers in their homes. Almost all of these respondents (39) stated that it did not cross their minds to feel nervous about having the contractors in their homes. Three stated they did not feel particularly nervous. Two respondents stated that they were a little nervous and one person was very nervous. Some householders mentioned that not only was their personal security assured by the use of companies contracted to the Council, but they also felt secure that they would have recourse should a problem arise, for the same reason – having Dublin City Council as the project managers and overseers of the contractors was reassuring in terms of the quality of the work and dealing with any problems that might arise.

In terms of the energy advice, about two-fifths of respondents (18) found it somewhat useful and a similar amount (19) found it very useful. But the remaining one-fifth could not recall getting any energy advice. After the installation works were completed, the households were again given energy advice. Eighty per cent found it useful, but three respondents did not recall getting any post-upgrade energy advice, and six did not find it particularly helpful.

Overall, respondents found the new heating system reasonably unproblematic, with almost half of the respondents (21) stating that they found the instructions to be very straightforward and a similar number (19) stating that they found it somewhat complicated but figured it out with full instructions. Five respondents reported that they found the instructions too difficult. Seventeen respondents found the system took a little getting used to, and required some third-party instruction.

At this stage, immediately after installation, respondents had few concerns about the new system. Over two-thirds (33) said they had no concerns, seven were concerned it would cost a lot to run, two were concerned they were not using the system correctly, and a further two were concerned about who would service it after the warranty period. One respondent was a little concerned about having gas in the household. However, almost all of the respondents (43) stated they would recommend the scheme to someone else, with just one person stating it would depend on the person. One respondent would not recommend the scheme to someone else.

When asked, two-thirds of respondents (30) said they would have been willing to contribute to the scheme, with six stating they would have been willing to contribute under €500, ten stating they could contribute €500-€1,000, and eight stating they would have been able to pay over €1,000. Respondents stated they would have had to take out loans for these contributions should they have been necessary.

Table 6.3 outlines some of the principal information garnered from this first time-point in the evaluation.

Table 6.3 Summary of principal information

	Upgrade	Full	Total
Households	45	21	66
Males	24	9	33
Females	39	17	56
Average weekly income for married couple	€413.96	€376.08	Average €406.38
Average weekly income for one person household	€268.36	€260.81	Average €276.02
Average monthly winter heating bill	€134.68	€130.89	Average €132.78
Described home as cold to freezing in winter	31	19	50
Experienced draughts	34	17	51
Experienced damp	20	9	29
Experienced spatial shrinkage	25	19	44
Number of households with at least one person experiencing arthritis/rheumatism	36	10	46
Described works as being completed quickly/very quickly	38	19	57
Described energy advice as somewhat to very useful	37	13	50
Would recommend to someone else	43	19	62
Willing to contribute	30	12	42

SECTION SEVEN

Longer-term Impacts of the Scheme

7.1 Introduction

At the end of the first round of interviews, participants were asked if they would be happy to be re-contacted some months later to check how well the new heating scheme was working for them. The follow-up questionnaires were completed by telephone in December 2008 (see Appendix Two). This time-point was selected to ensure that there was sufficient time lapse for people to get used to their new systems over the winter cold spells. In total, there were sixty households who agreed to take part at the second time-point. Therefore, there was a low attrition rate of six – these were respondents from the first time-point who had stated that they did not wish to be contacted again, and also respondents who were no longer contactable by telephone. Respondents at the first time-point who had consented to being contacted later in the year, were sent letters in advance stating that they would receive a phone call arranging an appropriate time for a telephone survey and that they were not obligated to take part. If respondents preferred, they were given the option of doing the survey face-to-face in their homes. No respondent stated this preference, and all were done as telephone interviews.

Respondents are not divided in this section between those who never had a central heating system previously and those who benefited from system upgrades under the scheme – the rationale being that at the first time-point there were potentially great differences between the two groups in terms of their prior experiences of household management and health with regard to keeping warm. At this later time-point these groups should be matched as they should have had similar experiences in the intervening time.

7.2 Comparison between Systems

To remind respondents of the works and to gauge their general satisfaction, respondents were asked about their satisfaction/dissatisfaction with the principal elements of the scheme. Overall, respondents were very happy with the scheme, with all sixty stating they were either very satisfied or satisfied. When this satisfaction/dissatisfaction rating was broken down for the central heating system and the insulation, these results were mirrored. All respondents were either very satisfied or satisfied. Just one person stated that although they were satisfied with the new central heating system they would have reconsidered their application if they had known that the workers would be careless. Fifty-seven respondents thought that the energy advice was very useful or useful, but three respondents described it as not particularly useful.

Respondents were asked to make comparisons between their current experience and their experiences prior to the scheme. All 60 respondents stated that they were either more satisfied with the temperature of their homes now, or that they were somewhat more satisfied. No respondents reported having any mould or damp in their homes. Seven respondents stated that they had draughts in their homes – but when asked where these draughts were occurring it was clear that this had nothing to do with the new system, but instead demonstrated the need for further home improvements. For example, draughts could persist due to older windows and chimneys. However, of these respondents, four stated that the draughts, though present, were better than prior to the scheme. Just one household reported that the draughts had become worse since their new system was installed.

Three households experienced condensation, but two said it had got better since the new system was installed, and one respondent said it was the same as previously experienced. All three of these respondents experienced this condensation in their kitchen areas, with one respondent stating that the condensation was also in the sitting room.

7.3 Experience Using the New Scheme

Overall, respondents were happy with the scheme, with all stating that they would recommend it to a friend, 57 respondents saying that their home was now more comfortable, and three respondents stating that their home was as comfortable as prior to the installation works. Just over half (31) of respondents said they found using the new system not too difficult, and a further two-fifths (24) said it was not a problem to use the new system. Five respondents said that it was easy to use the new system. One respondent suggested that more instructions for the timer would have made using the new system easier. One respondent felt they were still just learning how to use the system and another person was not sure if they were using it correctly.

Fifty-nine respondents stated that they now always had enough hot water, with just one respondent stating that they sometimes ran out of hot water when they needed it. Overall respondents were happy with the temperature setting – 58 respondents stated that the temperature was just right, with one respondent each describing the water temperature as too hot or too cold. This was an improvement since the first survey time-point when respondents commonly referred to the water as being too hot following the scheme improvements.

Despite their overall satisfaction with the system and insulation, just under a third of households (18) still used a secondary heat source. Eight of these were either open fires or gas/electric fires, with one of these respondents also using a free-standing heater. Another respondent had bought an electric fire but never used it. Nine other respondents used a free-standing heater only. It is possible that households were still using open/electric/gas fires as a focal point in their living rooms rather than as a necessity. Just nine respondents described additional measures that they took to keep warm. Seven respondents used draught excluders, one household had extra blankets on their beds as well as in the living area and another household had extra blankets on their beds and in the living area and also used hot water bottles. Eight households did not think any additional measures to keep warm were necessary, and 43 did not feel that they took any particular measures to keep warm other than their use of their new system.

Three-quarters of households (44) reported that they tended to have their heating on for more than five hours per day on a typical cold day in the winter. Eleven households have the heating on all day, four households have the heating on for four to five hours per day, and one household only has their heating on for three to four hours per day on a typically cold winter's day.

Two-thirds of households (40) used the timer on their new heating system, and the original difficulty with the timers was evident. Three respondents described the timer as really easy to use, 17 respondents stated that it had become easier to use, with a further 11 respondents describing it as somewhat difficult to use. Three respondents were unsure if they were using the timer correctly. The remainder had someone else (relative, friend, electrician) set the timer on their behalf. One-third of households (20) did not use the timer, ten of these felt they did not need the timer, six found the timer too difficult and four respondents had forgotten the instructions.

Two-thirds of households (40) had kept all of their radiators on in all the rooms of their homes, one-third (19) occasionally turned some of the radiators off, and one household always had radiators turned off in some of their rooms. Just over half of households (31) had their radiator valves turned up since their installation and a further 16 had not adjusted them as it was not necessary. Three households turned the temperature down, and four households had adjusted their various radiators up and down in different rooms.

One-third of households (20) described having one room in the house warmer than the others – 16 described their sitting rooms as being warmer than elsewhere in the house, two mentioned the kitchen, one said the front bedroom was the warmest room and another person described the entire downstairs area as warmer than upstairs. Respondents were able to describe very rational reasons for these warmer areas/rooms; three households had adjusted the radiators in the warmer room upwards, three others had their additional heat sources in these rooms, and five respondents also stated that this warmer room was also the smallest room in the house and therefore felt warmer quicker. Another person who had mentioned that the kitchen was warmer stated this was because of having the oven on. Two respondents mentioned that their radiator in the warmest room was the largest. One householder stated that their warmest room was the room furthest away from a cold extension that had been added to the home.

Fourteen respondents (out of 20) who had described their households as having one warmer room also stated that they spent more time in this room, indicating some spatial shrinkage.

Almost all (55) respondents stated they never went back to bed in the mornings until the house warmed up, while five respondents sometimes did this. No respondent stated that the temperature of their home influenced the time they went to bed.

Fifty-six respondents stated that their home was warm within a half-hour after the heating was turned on, with four respondents stating that it was warm within an hour. These responses were considered against the use of a secondary heat source. It was expected that households who thought the house took an hour to be warm might also be the households that require a secondary heat source. This was not found to strictly be the case. Two households who thought their home took an hour to warm up used a free-standing heater and one used an electric heater. The remaining users of additional sources of heat stated that their homes were warm within 30 minutes – this included all the users of open and gas fires. Over half of this sample (36) found maintaining the warmth to be very easy, 22 found it easy and just two stated it was difficult. Thirty-nine respondents stated that it took a few hours for their home to cool after they had turned off the heating, 16 respondents stated that it was cool within an hour, and four households said that their home cooled within a half hour of turning off the heating.

7.4 Heating Costs

Respondents were asked if their energy costs were a cause for concern and almost all, 58 respondents, said no – only two respondents were concerned. Fifty-five respondents said they would never cut back on their heating due to cost, and five respondents reported they rarely did this.

When asked about their energy bills since the installation and during the colder weather, respondents were rarely able to provide a figure. The following were responses derived when asked about gas bills, solid fuel bills and electricity bills on a two-month basis.

Gas

Four respondents stated that their gas bills were cheaper since the installation, six said they were more expensive and one respondent said that the bills were the same in the summer and the winter.

Four respondents said their two-monthly bills were between €180 and €270, another four said their bills were €120-€130, and six stated their bills were €80 and under.

The majority of this sample could not answer this question; eleven respondents did not know how much their bills were, one respondent had a relative who paid the bill and four households were covered by their free units. Nineteen respondents consistently topped up their accounts/meters, so they could not estimate a typical cost as they were always in credit.

Electricity

These responses mirrored those of the gas bill outlined above. Thirteen respondents did not know how much their electricity cost, and 11 did not answer the question – either because they did not know or did not have electricity expenses.

Thirteen respondents said their electricity bills were now cheaper – with one of these respondents stating that this was because they have no reason to use their electric fire anymore. Three respondents said that their bills were more expensive.

Ten respondents were unaffected by their electricity bills as they had free units.

Six respondents' two-monthly winter electricity bills were under €95; four respondents' bills were €100-€200.

Solid Fuel

This applied to just five households. Two households stated that their solid fuel cost €40 every two months, and one household spent €60 every two months during the colder weather on this source of heating. One respondent did not know how much they spent, and one other respondent stated they buy two bags of coal every month whether they need it or not.

7.5 Health Impacts

As already stated, any changes or stabilisation of health status cannot be automatically considered attributable to new central heating and insulation. There are other variables that could influence health status, and as chronic or long-term illness can be common among older populations, it is unlikely that household improvements could ameliorate these. In addition, health status is not independently verified, and instead is self-reported. Bearing in mind these caveats and the limitations of this evaluation, the intent was to establish improvements in self-reported quality of life using health as an indicator.

At the time of the second questionnaire being administered (December 2008), over three-quarters of respondents (48) reported that their health had improved since the same time the previous year; 12 respondents reported that their health was the same as it had been in the previous year. Two respondents reported that they believed having a warmer house had improved their health, and one respondent stated that they did not get as many colds as during the previous year. Two further respondents reported that they would go to bed earlier when the house was not as warm. Therefore, the heating and insulation improvements possibly had a positive impact on mental health. Eleven respondents reported that their spouse's health had improved since the same time the previous year, and seven reported that their spouse's health was the same as in the previous year. One respondent reported that the new system had facilitated the maintaining of the household temperature which was essential as his wife was recovering from a heart attack.

Three respondents reported having asthma, and two stated it had improved since the same time the previous year. The other person said it had not improved. Three respondents had previously had bronchitis, and all three reported that this had improved since the same time the previous year. Sixteen respondents stated that they had blood pressure problems, and one respondent reported that their spouse had blood pressure problems, but no one said that it had improved.

Over half of these respondents (31) reported having arthritis/rheumatism at this second time point, and eight respondents reported that their spouse had arthritis/rheumatism. No one reported that their spouse's arthritis/rheumatism had improved in the preceding year, but nine did report that their own arthritis/rheumatism had improved.

There was low reporting of illnesses associated with the cold. Nine respondents and four spouses were reported to have experienced colds during the winter. Three respondents had experienced flu during the winter – one respondent, and two respondents reported this on behalf of their spouse. One respondent reported experiencing wheezing fits over the winter.

No respondents reported that they, or anyone in their household, experienced headaches, chest infections or more than one of these cold-associated illnesses over the winter.

7.6 Overall Experience and Future Considerations

All respondents stated they would recommend the scheme to a friend, describing the scheme as 'fantastic', 'great', 'brilliant'. Respondents at the second time-point cited the improvements in their lives now that their homes were 'always warm', and two other respondents stated that the scheme was the best thing that had ever happened to them.

The pilot scheme did not involve a financial contribution from households but it was considered useful to ask if they would have been willing to cover some of the costs of the works undertaken (while being reassured this was a hypothetical question). Two-thirds of respondents (42) said they would have been willing, and one-third (22) said they would not have been willing to contribute (two households did not answer this question). Of the respondents who would have been willing to contribute, about one quarter (11 respondents) said they would have been willing to contribute up to €500, a further quarter (11 respondents) said between €500-€1,000, a further quarter (10 respondents) said between €1,000-€3,000 and just one respondent would have contributed over €3,000. The remaining nine respondents could not decide on a figure, and instead stated that it would depend what was asked of them.

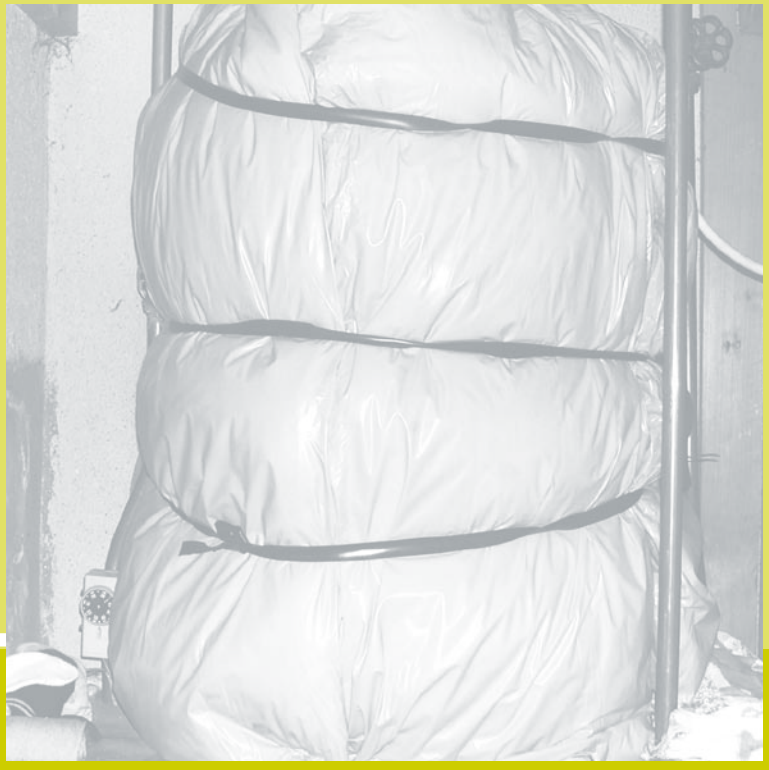
Given that the average spend per household was €6,600, the level of contribution that respondents were willing to make may demonstrate that these households would not have been able to get these works done without funded assistance. Additionally, willingness to contribute does not necessarily mean that households had this money as disposable income. Respondents did mention that they would have to take out loans to cover their hypothetical contribution.

Respondents were given the opportunity to make any additional comments on the scheme. Overall, respondents were happy with their new systems, with some minor problems cited. Four households were conscious of the expense, but were satisfied that it was covered by their free units and felt that any extra expense was worth it.

Respondents were asked if they would like more energy advice. At the second questionnaire time-point, a third (19) said they would, and two-thirds (41) did not want more advice. Nine respondents expanded on their reasoning – of these, eight felt that they were managing without any extra advice or felt that they would not understand. One respondent who had stated that he would like more energy advice said this was because he would like to be as economical as possible.

SECTION EIGHT

Conclusion and Recommendations



8.1 Conclusion

This evaluation has found that, overall, respondents were very happy with the scheme from the point of application through to their final energy advice received from Energy Action Ltd. The installations did not necessarily improve the beneficiaries' health, as many of their health problems were chronic long-term illnesses. Respondents' quality of life was clearly improved, however. This was evident in their descriptions of their homes as being more comfortable since the scheme. The household improvements could prevent or stabilise certain health problems associated with living in colder environments, and could release funds and encourage householders to make other improvements, for example double-glazing. These improvements to older householders' health and environments could potentially save the Exchequer in the long-term through facilitating older people to age in place and reduce medical expenses.

With regard to the scheme itself, the application form appeared unproblematic. However, the inconsistent method of finding out about the scheme initially should provide some food for thought if similar schemes are launched in the future. Overall, respondents were very impressed with the contractors' cleanliness, speed and efficiency, and no one was particularly concerned about having a number of strangers in their homes in terms of security. Respondents had anticipated that these works were a major job and had expected a good deal of dirt and mess – overall respondents were satisfied that this was kept to a minimum. Respondents were impressed that older systems were removed and disposed of, with a small number of respondents complaining that the works were too disruptive for them (not that the scheme was not appreciated and worthwhile), and a small number complained that not all rubbish was disposed of despite contrary promises.

Respondents' only real problems occurred immediately before and immediately after the works took place and may fall outside the jurisdiction of this scheme. However, it is necessary to mention this as it may be a reason that frailer older people would not apply. Some respondents were physically not capable of the preparatory work that they believed necessary before the works took place. Some respondents possibly thought that a lot more was expected of them and worried that they were delaying the contractors by not removing carpets and floorboards. Attics had to be emptied prior to the works and for some older people this was simply not an option. After the works were completed, respondents mainly called upon younger family members to assist in replacing the carpets. Again, for more isolated older people this may have precluded them from application.

The energy audit undertaken by Energy Action Ltd clearly shows that the work undertaken has had a beneficial effect on the energy efficiency of the homes involved in the scheme. Average energy values were found to have more than halved as had carbon dioxide emissions and the payback time on carbon saving was estimated to be between three and six years. The average running cost per dwelling was also estimated to have reduced by approximately 40 per cent, which should have positive impacts on addressing fuel poverty.

The National Survey of Housing Quality 2001-2002 (Watson and Williams, 2003) noted that an absence of central heating was most common for people over age 65, people living alone, people with the lowest incomes, and people living in dwellings built before 1941. In this same survey, the age of the dwelling was closely associated with the absence of roof and wall insulation. In addition, this report notes that in 1998 residential energy use contributed 10.89 million tonnes towards Ireland's carbon dioxide emissions – 29 per cent of the country's total. The 2006 census (Census 2006, Vol. 6, Housing) revealed that there were 136,155 private dwellings in permanent housing units without central heating. Table 8.1 shows that in 2006 there were 28,387 over-age-65 households in the State that did not have central heating. It is outside the remit of this evaluation to recommend rolling out this scheme, it is suffice to note the wider national picture and the potential benefits to the individual as well as the national Exchequer and environment should households be encouraged to upgrade/ install central heating systems and insulation. The payback period information, as provided by Energy Action, shows that this payback is reasonably fast. Energy Action would recommend that in the future a formal method for evaluating carbon savings from building refurbishment measures should be developed along the lines of the UK CERT system, and that running costs should also be included in line with calculations of efficiency and payback periods in future schemes. In this regard, carbon offsetting[7] could be an innovative way of extending the scheme without a cost to the Exchequer.[8] Although carbon offsetting is frequently criticised for buying rather than reducing overall carbon levels, this format could allow the purchasing to directly decrease energy usage in households while potentially also alleviating fuel poverty. Another interesting innovative method would be to offset fuel allowances against household improvements and allowing households to incrementally purchase their energy efficiency improvements through the fuel bills (see IIEA forthcoming publication *Greenprint for a national energy efficiency retrofit programme*).

Therefore, to reiterate information already provided, it is the most vulnerable households that are most affected by fuel poverty, and who are most likely to be living in thermally inefficient housing. The contribution of residential carbon dioxide emissions to Ireland's overall footprint is not insubstantial. Retrofitting schemes such as this pilot scheme demonstrate the savings that could be made, both for the individual and the Exchequer, in terms of complying with internationally agreed protocols. It would be too crude a measure to transpose the €6,600 per unit spent to the 136,155 dwellings without central heating nationally and infer the reduction of carbon emissions and costs to the householder. However, it is sufficient to note that this would be a significant step towards reducing Ireland's carbon footprint and addressing fuel poverty. It would also be in line with the DEHLG's *Delivering Homes, Sustaining Communities* (2007) commitment to improve housing quality, to be gauged by the ten-yearly housing stock audits.

7 Carbon offsets are emission reductions that have been made elsewhere and which are then sold to the entity that seeks to mitigate its impact. (Enviros, 2009:5)

8 Budget 2010 introduced a range of carbon taxes – see www.finance.gov.ie for further details. The *Renewed Programme for Government* (October 2009) contained commitments to introduce these. The principles underlying them included protecting those most at risk of fuel poverty and improving the fuel efficiency of our current housing stock.

8.2 Recommendations:

- More consideration should be given to the best way to advertise schemes of this nature to make sure that those eligible and likely to benefit from the work would be aware of the scheme. Distributing this information alongside fuel benefit payments could be a useful strategy.
- There should be clarity about what is the expected role of scheme recipients with regard to moving furniture and flooring. If possible, some assistance in these tasks should be built into schemes for those most in need.
- In terms of the type of work to be undertaken, the audit by Energy Action Ltd shows that the greatest impact can be achieved by the improved efficiency of heat generators, upgrading of water heating cylinders and heating controls. Wall insulation measures are also required to complement attic insulation and draught-proofing. The data provided by Energy Action Ltd. demonstrated that for very poorly insulated homes, modest amounts of alterations can provide substantial improvements.
- Although this pilot scheme did not involve a contribution from those who availed of it, when asked many respondents said that potentially they would be willing to financially contribute towards the cost of the work. This should be explored in more detail should the scheme be expanded (for example, through a pay-as-you-save type scheme). Low-income households should not be excluded from having this work undertaken on affordability grounds.
- Although an Energy Action representative visited to make sure respondents were not experiencing difficulties – and this was beneficial – a set of clear guidelines, with photos, written in large print using 'plain English' (as defined by the National Adult Literacy Agency) may also help supplement this information after the representative has gone. This is particularly important, bearing in mind that respondents may not fully recall how to use their systems from winter-to-winter, as is evident in the fact that they understood how their timers worked when the representative was present but some had forgotten in the short intervening period.
- The role of the quality controller should perhaps be expanded and, alongside inspecting the system, such a person could also create a 'snag' list, ensure that no rubbish is left behind and ensure that all that has been promised has been delivered.
- A business card of one person who could be contacted by telephone with any queries or problems could prove useful for similar schemes in the future. This role could be expanded to act as an access point for recipients of similar schemes to learn what else they might be entitled to and how to go about accessing other grants, schemes or benefits.

Should the scheme be expanded or incorporated into another grant scheme, the following three economic benefits should be highlighted:

- The employment potential and associated benefits to the Exchequer.
- The carbon footprint reduction and the potential saving to the Exchequer under Kyoto Protocols.
- The potential saving to the Exchequer in the long-term of not only keeping people in their homes for as long as possible, but also the reduction in medical bills for illnesses associated with the cold as the general housing stock improves.

Table 8.1 Private dwellings with no central heating where the household is aged over 65 by nature of occupancy

	Owner occupied with loan or mortgage	Owner occupied without loan or mortgage	Being purchased from a local authority	Rented from a local authority
Leinster	**560**	**7,515**	**367**	**795**
Carlow	11	229	7	22
Dublin	245	2,802	167	337
of which				
Dublin city	188	1,973	121	239
DL/Rathdown	27	444	27	57
Fingal	17	217	10	25
South Dublin	13	168	9	16
Kildare	21	375	27	75
Kilkenny	29	470	14	33
Laois	23	360	19	27
Longford	15	245	9	40
Louth	34	393	32	31
Meath	32	384	12	29
Offaly	49	409	17	23
Westmeath	24	492	20	34
Wexford	50	907	23	77
Wicklow	27	449	20	67
Munster	517	7,809	289	822
Clare	57	791	25	52
Cork	177	3,015	103	322
of which				
Cork city	50	678	39	162
Cork county	127	2,337	64	160
Kerry	91	1,257	40	100
Limerick	78	1,039	54	157
of which				
Limerick city	18	223	26	106
Limerick county	60	816	28	51
North Tipperary	36	495	11	38
South Tipperary	29	580	34	58
Waterford	49	632	22	95
of which				
Waterford city	13	187	7	77
Waterford county	36	445	15	18
Connacht	**266**	**3,451**	**58**	**342**
Galway	104	1,362	21	94
of which				
Galway city	17	173	5	51
Galway county	87	1,189	16	43
Leitrim	16	247	2	30
Mayo	81	945	20	130
Roscommon	40	508	6	27
Sligo	25	389	9	61
Ulster (part of)	**114**	**1,573**	**40**	**172**
Cavan	31	471	10	31
Donegal	64	796	21	115
Monaghan	19	306	9	26
State	1,457	20,348	754	2,131

Source: Census 2006

Rented from a voluntary body	Private rented unfurnished	Private rented furnished or part furnished	Occupied free of rent	Not stated	TOTAL
228	**314**	**279**	**462**	**349**	**10,869**
–	4	5	22	10	**310**
136	226	187	129	117	**4,346**
116	180	158	75	76	**3,126**
11	35	17	27	21	**666**
7	7	5	18	11	**317**
2	4	7	9	9	**237**
8	9	5	26	20	**566**
15	4	15	25	22	**627**
4	6	4	29	15	**487**
–	2	3	12	15	**341**
13	10	8	28	14	**563**
7	5	3	37	24	**533**
3	8	5	30	22	**566**
4	5	6	30	28	**643**
33	22	27	60	36	**1,235**
5	13	11	34	26	**652**
217	178	183	479	345	**10,839**
12	8	10	62	28	**1,045**
86	123	105	193	154	**4,278**
28	72	26	20	35	**1,110**
58	51	79	173	119	**3,168**
16	8	16	69	49	**1,646**
38	15	24	68	37	**1,510**
19	10	17	15	13	**447**
19	5	7	53	24	**1,063**
14	4	5	25	29	**657**
12	5	6	28	25	**777**
39	15	17	34	23	**926**
32	6	11	7	10	**350**
7	9	6	27	13	**576**
74	**36**	**73**	**145**	**120**	**4,565**
23	15	24	56	53	**1,752**
5	10	5	8	6	**280**
18	5	19	48	47	**1,472**
3	–	1	12	11	**322**
34	12	30	41	23	**1,316**
8	6	7	20	19	**641**
6	3	11	16	14	**534**
22	**22**	**27**	**86**	**58**	**2,114**
7	2	7	25	15	**599**
14	11	15	47	33	**1,116**
1	9	5	14	10	**399**
541	550	562	1,172	872	**28,387**

Bibliography

- Brophy, V., Clinch, J.P., Convery, F.J., Healy, J., King, C. and Lewis, J.O. (1999) *Homes for the 21st Century: The Costs and Benefits of Comfortable Housing for Ireland* Report prepared by the Energy Research Group and Environmental Institute, UCD, published by Energy Action Limited
- Citizen's Information Board – www.citizensinformationboard.ie – for information on fuel allowance payments
- CSO (2009) *Survey on Income and Living Conditions: Housing Module 2007* (Accessed 7 October 2009: http://www.cso.ie/releasespublications/documents/silc/2007/silchousing2007.pdf)
- Department of Communications, Marine and Natural Resources, White Paper (2007) *Delivering a Sustainable Energy Future for Ireland: The Energy Policy Framework 2007-2020*
- Department of the Environment, Heritage and Local Government (2007) *Delivering Homes, Sustaining Communities*
- Enviros Consulting Limited (September 2009) *Carbon Offsetting for Social Housing* UK: National Housing Federation
- Government of Ireland (February 2007) *National Action Plan for Social Inclusion 2007-2016 (NAPinclusion)*
- Lloyd, E.L., McCormack, C., McKeever, M. and Syme, M. (2008) 'The Effect of Improving the Thermal Quality of Cold Housing on Blood Pressure and General Health: A research note' *Journal of Epidemiology and Community Health* 62(9) pp793-7
- McAvoy, H. (2007) *All-Ireland Policy Paper on Fuel Poverty and Health* Dublin: Institute of Public Health in Ireland
- McEvoy, R. and Rugkåsa, J. (2005) *'Life doesn't revolve around lighting a fire anymore': An Evaluation of the Warming Up Project and Recommendations for Future Action* Prepared by the Institute of Public Health in Ireland. Institute of Public Health in Ireland, South and East Belfast Health and Social Services Trust, NEA Northern Ireland
- Rugkåsa, J., Shortt, N. and Boydell, L. (2004) *Engaging Communities: An evaluation of a community development model for tackling rural fuel poverty* Prepared by the Institute for Public Health in Ireland. Armagh and Dungannon Health Action Zone
- Sheldrick, B. and Hanratty, M. (2004) *The Ballyfermot Residential Energy & Fuel Poverty Report* Energy Action Ltd
- Sheldrick, B. and Hanratty, M. (2004a) *The Ballyfermot Residential Energy & Fuel Poverty Dwelling Report* Energy Action Ltd
- Social Market Research (2009) Effectiveness of Domestic Energy-efficiency Programme. Fuel Poverty Action Research: Dublin: Social Inclusion Division, Department of Social and Family Affairs. http://www.seai.ie/Grants/Warmer_Homes_Scheme/Fuel_Poverty_Action_Research_Reports/
- Sustainable Energy Ireland (November 2003) *A Review of Fuel Poverty and Low Income Housing*
- The Irish SVP Quarterly Review (Spring 2008) *Ozanam Bulletin* SVP National Office
- Watson, D. and Williams, J. (2003) *Irish National Survey of Housing Quality 2001-2002* Economic and Social Research Institute and the Department of the Environment, Heritage and Local Government

Appendices

Appendix 1

Pilot Central Heating and Insulation Scheme for Older People Application

No works should be undertaken until the applicant receives notice of approval in writing from Dublin City Council.

All questions on this form must be answered. Please write your answers clearly in block letters. Incomplete applications will not be accepted.

Conditions of the Scheme

Who can apply?

The scheme is available to older people who own their homes and are living alone or with another older person.

What works are covered under the scheme?

The scheme provides a package of heating and insulation works to include the provision of a central heating system, related insulation works, provision of smoke alarms and energy advice.

Is there a means test?

Yes, in order to qualify applicant's gross household income should not exceed €30,000 per annum.

Evidence of household income

Evidence of household income should be included with all applications, e.g. in the case of social welfare recipients, a statement from the Department of Social and Family Affairs stating weekly/annual payments. In the case of State Pensioners, a copy of the current pension book will suffice.

This application is not intended for general maintenance/improvement works.

Pilot Central Heating and Insulation Application

All questions must be answered

Names:

Telephone No:

Address:

Date of birth:

Household Income Details:

Weekly Amount:

Pension Book Claim No. (if applicable):

P.P.S No. (formerly PRSI No.)

Are you a fully registered owner of this property?

☐ Yes ☐ No

Details of rooms in dwelling

	Living Room	Kitchen	Dining	Bedrooms	WC	Bathroom	Extn/Other
Upstairs							
Downstairs							

Details of any other persons living in the house

Name	Date Of Birth	Relationship To Applicant	Weekly Income	Occupation (if applicable)

Proposed Work

Do you have Heating currently in the house?

If yes, what type?

When was Heating installed?

Is there Insulation currently in the house?

If yes, what type?

If yes, what type?

Reason why work is necessary

Have you received any grants for works to your house by Dublin City Council, Health Service Executive, or any other agency?

☐ Yes

☐ No

Please give details

I confirm that the information listed above is correct to the best of my knowledge.

Signature of applicant 1

Date:

Signature of applicant 2 (if applicable)

Date:

Please ensure that income details are enclosed with the completed application form

Appendix 2

Date:
____ /____ /2008

ID number
_____

Did you have a central heating system prior to this scheme?

- ☐ No, needs a full system installed where central heating did not previously exist
- ☐ Yes, an upgrade is needed

All these questions refer to your home BEFORE the upgrade works

Section One: Information about the home

Before you had this work done how would you describe the temperature in your home in winter time?

- ☐ Freezing
- ☐ Very cold
- ☐ Cold
- ☐ About right
- ☐ Warm
- ☐ Too warm

How satisfied or dissatisfied were you with the temperature in your home during cold periods? [before the Scheme]

- ☐ I was very satisfied
- ☐ I was satisfied
- ☐ I was dissatisfied
- ☐ I was very dissatisfied

How satisfied or dissatisfied were you with the temperature in your home during the rest of the year? [before the Scheme]

- ☐ I was very satisfied
- ☐ I was satisfied
- ☐ I was dissatisfied
- ☐ I was very dissatisfied

Have you ever noticed the following in your home:

Draughts	Yes	No _____
Mould	Yes	No _____
Condensation	Yes	No _____
Damp	Yes	No _____

If so, in which rooms?

_____

What was your hot water source prior to the upgrade work?

- ☐ Back Boiler
- ☐ Immersion
- ☐ Heated water as I needed it (eg kettle)
- ☐ Old central heating system
- ☐ Back boiler and immersion
- ☐ Instant, no water stored
- ☐ Other _____

Prior to the upgrade work:

- ☐ I always had enough hot water for my needs
- ☐ I sometimes ran out of hot water when I needed it
- ☐ I never had enough hot water

In Winter, how did you heat your home prior to the Scheme?

- ☐ Open fire
- ☐ Open fire & back boiler
- ☐ Electric fire
- ☐ Gas fire
- ☐ Gas fire & back boiler
- ☐ Gas boiler & radiator system
- ☐ Electric heater/Free standing heater
- ☐ Older gas/oil/central heating system
- ☐ Storage heater
- ☐ Solid fuel range
- ☐ Other _____

☐ **Secondary heat source**

_____

☐ **Other heat source**

_____

Where was this (main) heat-source located?

- ☐ Bedroom
- ☐ Kitchen
- ☐ Living Room
- ☐ Upstairs
- ☐ Downstairs
- ☐ Other
- ☐ Not Applicable (as in the case where there was a central heating system)

(If respondent has have a solid fuel fire) did you ever notice unpleasant fumes or dust in the house?

- ☐ Yes
- ☐ No
- ☐ N/A

Additional comments:

_____

I would like to ask you a few questions about your typical day with regard to keeping warm in winter:

What time did you put on the fire/heating?

- ☐ It was on before I got up (timer)
- ☐ As soon as I got up
- ☐ Mid morning
- ☐ Lunch time
- ☐ Afternoon
- ☐ Evening
- ☐ Night-time
- ☐ It varied
- ☐ Other_____

What time did you put it out/turn off?

- ☐ An hour late
- ☐ Within a few hours
- ☐ Early afternoon
- ☐ Late afternoon
- ☐ Evening
- ☐ Night-time
- ☐ It was on all night
- ☐ It varied
- ☐ Other_____

Was it on all day?

- ☐ Yes
- ☐ No
- ☐ Intermittently
- ☐ N/A

_____

_____

Did you go back to bed in mornings until it warmed up?

- ☐ Always
- ☐ Frequently
- ☐ Sometimes
- ☐ Never

How long did it take to warm up the room/house?

- ☐ It was warm within 15 minutes
- ☐ It was warm within an hour
- ☐ It took a few hours to be warm
- ☐ It did not fully warm up

How difficult or easy was it to maintain that warmth throughout the day?

- ☐ Very difficult
- ☐ Difficult
- ☐ Easy
- ☐ Very easy

What other measures did you take to keep warm?

_____

Did you spend most of your time in the rooms with heating?

☐ Yes ☐ No ☐ N/A

Did you ever avoid having visitors due to the temperature of your home?

☐ Always ☐ Frequently
☐ Occasionally ☐ Never

Did the lack of heat ever influence the time you went to bed?

☐ Yes ☐ No

In the case of a fire – was it ever a problem to clean the grate?

☐ N/A ☐ Yes ☐ No

If yes, why?

_____

_____

How did you get your coal/logs/briquettes?

- ☐ N/A
- ☐ Picked them up myself.
  Was this ever problematic?
  _____
- ☐ Relative/friend delivered
- ☐ Supplier delivered
- ☐ Combination of these

Section Two: Information about the Pilot Scheme:

How did you hear about the Scheme?

- ☐ Newspaper advertisement
- ☐ Word of mouth
  (informal e.g. friend or relative)
- ☐ Public representative
- ☐ Church newsletter
- ☐ Other. Please specify

_____

_____

Why did you decide to apply?

_____

_____

What did you hope to get from the Scheme?

- ☐ A warmer house
- ☐ A better system
- ☐ Added value to house
- ☐ Comfort
- ☐ Safety
- ☐ Comfort & heat
- ☐ Convenience & heat
- ☐ Didn't expect anything

_____

_____

Did you fill out the application form?

- ☐ Yes, by myself
- ☐ No, someone else (who?)
  _____
- ☐ Yes, with someone else:
- ☐ younger relative
- ☐ friend
- ☐ public representative
- ☐ neighbour

Why? _____

Can we talk about the installation work that has taken place in your home?

Were the upgrade works completed:

- ☐ Very quickly
- ☐ Quickly
- ☐ In a reasonable time
- ☐ Not quickly enough
- ☐ Far too slowly

Did the upgrade works cause:

- ☐ Too much disruption
- ☐ A little disruption
- ☐ A little disruption but this did not bother me
- ☐ No disruption at all

The upgrade works created:

- ☐ A lot of dirt and mess that I had to clean up
- ☐ A little dirt and mess that I had to clean up
- ☐ A little dirt and mess but the contractors cleaned most of it up
- ☐ Dirt and mess but the contractors cleaned it all up
- ☐ There was no dirt and mess

During the upgrade works:

- ☐ I felt very nervous about having the contractors in my home
- ☐ I felt a little nervous about having the contractors in my home
- ☐ I did not feel particularly nervous about having the contractors in my home
- ☐ I did not feel nervous at all about having the contractors in my home

What did you think of the energy advice before the upgrade works?

- ☐ I did not think it was helpful at all
- ☐ I did not find it particularly helpful
- ☐ I found it somewhat useful
- ☐ I found it very useful

What did you think of the energy advice after the upgrade works?

- ☐ I did not think it was helpful at all
- ☐ I did not find it particularly helpful
- ☐ I found it somewhat useful
- ☐ I found it very useful

Did you find the instructions for use?

- ☐ Too difficult to understand
- ☐ Tricky but I figured it out with the DCC contractor/EA instructor's help
- ☐ Tricky but I figured it out with someone else's help.
  Who? _____
- ☐ Tricky but I figured it out by myself after the DCC contractor had left
- ☐ Tricky but I figured it out by myself when the EA instructor had left
- ☐ Very straightforward
- ☐ N/A

How have you found using the new system?

- ☐ Difficult
- ☐ Not too difficult
- ☐ It hasn't been a problem
- ☐ Easy
- ☐ N/A

What would have made it easier?

_____

_____

Have you any concerns about this new system?

_____

_____

Would you recommend this Scheme to other people?

- ☐ Definitely not
- ☐ I don't think I would recommend it
- ☐ It would depend on the person
- ☐ I would recommend it

If you were to recommend it, why do you think it would be useful to that person?

_____

_____

Section Three: Health Status

How does the cold affect you?

_____

_____

How would you describe your health?

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Fair
- ☐ Poor
- ☐ Very poor

How would you describe the health of the other person/people living here?

- ☐ N/A
- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Fair
- ☐ Poor
- ☐ Very poor

Have you or anyone living in the house with you had: [state which householder suffered from which ailment]

☐ **Asthma**

Time of year?

- ☐ Winter
- ☐ Spring
- ☐ Summer
- ☐ Autumn

☐ **Eczema**

☐ **Bronchitis**

☐ **Arthritis/Rheumatism**

Does this get worse in cold weather?

- ☐ Yes
- ☐ No

☐ **Pneumonia**

☐ **Blood Pressure problems**

Section Four: Finance

How much did it cost to heat your home per week or per month over the winter months? (pre-intervention figure)

Solid fuel €_____

Electricity €_____

Gas €_____

Has this cost ever been a cause for concern?

Yes No

Have you ever had to cut back or go without heating due to its cost?

All the time Frequently

Occasionally Rarely Never

Do you receive benefits for any of the following:

Gas Electricity

Solid Fuel None of these

Do you use up all your free units?

Yes No N/A

Would you have been willing to contribute financially towards the scheme if that had been necessary?

Yes No

If yes, how much would you have been willing to contribute?

N/A

Under 500 euro

Over 500 euro but less than 1000 euro

1001 euro – 3000 euro

Over 3001 euro

Do you have a:

Contributory Pension

Non-contributory pension

Private

Disability

Do we have your permission to contact you again later this year to see how you are getting on with the upgrades (you can refuse to take part at this later date)?

Yes No

THANK YOU

Fieldworker: Any other comments made by interviewee or observations by you?

Heart problems *(Please specify)*

Stress or mental illness

None of the above

What was the relationship of this person to respondent?

_____

_____

Do you or anyone living with you regularly get?

Colds

Flu

Wheezing fits

Headaches

Chest infections

More than one of these

None of these

What was the relationship of this person to respondent?

_____

_____

Are there any other health problems that householders suffer from currently or frequently?

_____

_____

Do you use your GP service more during cold periods? [house calls & surgery]

A lot more during the cold periods

A little more during the cold periods

About the same year-round

Less so during the cold periods

I rarely visit the GP

Do you have a medical card?

Yes No

Time-point two: questionnaire

ID number

_____

Thinking about the Scheme overall would you say that you are...

- ☐ Overall, very satisfied
- ☐ Overall, I'm satisfied
- ☐ Overall, I'm dissatisfied
- ☐ Overall, I'm very dissatisfied

Why?

_____

_____

Thinking about the central heating in particular would you say that you are...

- ☐ Overall, very satisfied
- ☐ Overall, I'm satisfied
- ☐ Overall, I'm dissatisfied
- ☐ Overall, I'm very dissatisfied

Why?

_____

_____

Thinking about the insulation in particular would you say that you are...

- ☐ Overall, very satisfied
- ☐ Overall, I'm satisfied
- ☐ Overall, I'm dissatisfied
- ☐ Overall, I'm very dissatisfied

Why?

_____

_____

Thinking about the energy advice in particular would you say that it was...

- ☐ Overall, very useful
- ☐ Overall, it was useful
- ☐ Overall, it was not particularly useful
- ☐ Overall, it was not useful at all

Why?

_____

_____

Thinking about the temperature of your home prior to the installations, would you say you are:

- ☐ Much more satisfied with the house temperature now
- ☐ Somewhat more satisfied with the house temperature now
- ☐ I do not notice a difference in the temperature
- ☐ I am somewhat more dissatisfied with the house temperature now
- ☐ I am much more dissatisfied with the house temperature now

Have you noticed any of the following in your home in the last two months:

Draughts

☐ Yes ☐ No

In which rooms _____

Are the draughts

- ☐ Worse than last winter
- ☐ Better than last winter
- ☐ The same as last year

Mould

☐ Yes ☐ No

In which rooms _____

Is the mould

☐ Worse than last winter

☐ Better than last winter

☐ The same as last year

Condensation

☐ Yes ☐ No

In which rooms _____

Is the condensation

☐ Worse than last winter

☐ Better than last winter

☐ The same as last year

Damp

☐ Yes ☐ No

In which rooms _____

Is the damp

☐ Worse than last winter

☐ Better than last winter

☐ The same as last year

Thinking about your hot water would you say that since the installation you...

☐ Always have enough hot water

☐ Sometimes run out of hot water when needed

☐ Never have enough hot water

Would you say that:

☐ The temperature of the water is too hot

☐ The temperature of the water is just right

☐ The temperature of the water is too cold

Aside from the new central heating system, do you use any of the following heat sources?

☐ Open fire

☐ Gas fire

☐ Electric fire

☐ Free-standing heater

On a typically cold day this Winter, how many hours in total do you have the heating on for per day:

☐ I rarely use the central heating system

☐ 1-2 hours

☐ 2-3 hours

☐ 3-4 hours

☐ 4-5 hours

☐ More than 5 hours

☐ It is on all day

Do you use the timer on your heating?

☐ Yes ☐ No

Would you say that the timer is?

☐ Really easy to use

☐ Has become easier to use

☐ Is somewhat difficult to use

☐ I'm never fully sure that I am using it correctly

☐ N/A

Why do you not use the timer?

☐ It is too difficult to use

☐ I don't need it

☐ I have forgotten the instructions for use

Have you adjusted the valves on your radiator?

☐ Yes, I turned the temperature up

☐ Yes, I turned the temperature down

☐ No, I have not adjusted the valves because it is not necessary

☐ No, I have not adjusted the valves because I don't know how to

Thinking about the radiators, are they:

- ☐ On in all the rooms of the house
- ☐ Always turned off in some of the rooms
- ☐ Occasionally turned off in some of the rooms

Do you go back to bed in the morning until it warms up?

- ☐ Always
- ☐ Frequently
- ☐ Sometimes
- ☐ Never

How long does it take to warm up the house?

- ☐ It is warm within 30 minutes
- ☐ It is warm within an hour
- ☐ It takes a few hours to be warm
- ☐ It does not fully warm up

When you turn the heating off, how long does it take before the house is cool?

- ☐ It is cool within 30 minutes
- ☐ It is cool within an hour
- ☐ It takes a few hours to cool
- ☐ It does not fully cool down

How difficult or easy is it to maintain warmth in the house throughout the day?

- ☐ Very difficult
- ☐ Difficult
- ☐ Easy
- ☐ Very easy

How have you found using the new system over the past few months?

- ☐ Difficult
- ☐ Not too difficult
- ☐ It hasn't been a problem
- ☐ Easy

What would have made it easier?

_____

_____

Do you use other measures to keep warm since the installation?

_____

Is there one room that you think is considerably warmer than the rest of the house?

- ☐ Yes

  Which one? _____

  Why is this so? _____

- ☐ No

Do you spend more time in this room/these rooms?

☐ Yes ☐ No

Does the temperature of your home influence the time you go to bed?

☐ Yes ☐ No

Since the installation works do you think

- ☐ Your home is more comfortable than before the works
- ☐ Your home is as comfortable as before the works
- ☐ Your home is less comfortable than before the works

Do you think that...

- ☐ Your health has improved since this time last year
- ☐ Your health is the same as it was this time last year
- ☐ Your health has gotten worse since this time last year

In what way?

_____

Has the other householders health...

- Improved since this time last year
- Is the same as it was this time last year
- Gotten worse since this time last year

In what way?

_____

Did other householders suffer from any of the following last winter:

- **Asthma**
  Has it improved since this time last year?
  Yes No
- **Eczema**
  Has it improved since this time last year?
  Yes No
- **Bronchitis**
  Has it improved since this time last year?
  Yes No
- **Arthritis/Rheumatism**
  Has it improved since this time last year?
  Yes No
- **Pneumonia**
  Has it improved since this time last year?
  Yes No
- **Blood Pressure problems**
  Has it improved since this time last year?
  Yes No

Did you suffer from any of the following last winter:

- **Asthma**
  Has it improved since this time last year?
  Yes No
- **Eczema**
  Has it improved since this time last year?
  Yes No
- **Bronchitis**
  Has it improved since this time last year?
  Yes No
- **Arthritis/Rheumatism**
  Has it improved since this time last year?
  Yes No
- **Pneumonia**
  Has it improved since this time last year?
  Yes No
- **Blood Pressure problems**
  Has it improved since this time last year?
  Yes No

Have you experienced any of the following this winter?

- Colds
- Flu
- Wheezing fits
- Headaches
- Chest infections
- More than one of these
- None of these

Have other householders experienced any of the following this winter?

- ☐ Colds
- ☐ Flu
- ☐ Wheezing fits
- ☐ Headaches
- ☐ Chest infections
- ☐ More than one of these
- ☐ None of these

During the colder weather and since the installation works, about how much is your central heating bill?

It is approximately €_____
every two months

During the colder weather and since the installation works, about how much is your solid fuel bill?

- ☐ Not applicable

It is approximately €_____
every two months

During the colder weather and since the installation works, about how much is your electricity bill?

- ☐ Not applicable

It is approximately €_____
every two months

Have these costs been a cause for concern?

☐ Yes ☐ No

Do you cut back on your heating due to its cost?

- ☐ All the time
- ☐ Frequently
- ☐ Occasionally
- ☐ Rarely
- ☐ Never

Would you recommend this scheme to a friend?

☐ Yes ☐ No

Why?

_____

_____

_____

If given the opportunity would you like more energy advice?

☐ Yes ☐ No

Why?

_____

_____

_____

Are there any other comments that you would like to make?

_____

_____

THANK YOU FOR YOUR TIME AND COOPERATION

Other Publications

GOOD PRACTICE GUIDELINES

Brennan, B. (2000), *Good Practice in Housing Management: Guidelines for Local Authorities – Repair and Maintenance of Dwellings,* Dublin, Housing Unit.

Clarke, J. and Norris M. (2001), *Good Practice in Housing Management: Guidelines for Local Authorities – Rent Assessment, Collection, Accounting and Arrears Control,* Dublin, Housing Unit.

Moran, J. (2003), *Good Practice in Housing Management: Guidelines for Local Authorities – Housing Refugees,* Dublin, Housing Unit.

Norris, M. (2001), *Good Practice in Housing Management: Guidelines for Local Authorities – Managing Voids: Co-ordinating the Monitoring, Repair and Allocation of Vacant Dwellings,* Dublin, Housing Unit.

Norris, M. (ed) (2001), *Good Practice in Housing Management: Guidelines for Local Authorities – Managing in Partnership: Enabling Tenant Participation in Housing Estate Management,* Dublin, Housing Unit.

Norris, M. (2003), *Good Practice in Housing Management: Guidelines for Local Authorities – Preventing and Combating Anti-Social Behaviour,* Dublin, Housing Unit.

DTZ Pieda (2004), *Good Practice in Housing Management: Guidelines for Social Housing Providers – Training and Information for Tenants,* Dublin, Housing Unit.

Treadwell Shine, K. and Norris, M. (2006) *Good Practice in Housing Management: Guidelines for Local Authorities – Regenerating Estates, Rebuilding Vibrant Communities,* Dublin, Centre for Housing Research.

Kane, F., Treadwell-Shine, K., and Coates, D. (2008) *Traveller-Specific Accommodation: Practice, Design and Management* Dublin, Centre for Housing Research

HOUSING RESEARCH SERIES

Brooke, S. and Norris, M. (2002), *The Housing Management Initiatives Grants Scheme: An Evaluation,* Dublin, Housing Unit.

Murray, K. and Norris, M. (2002), *Profile of Households Accommodated by Dublin City Council: Analysis of Socio-Demographic, Income and Spatial Patterns,* Dublin, Housing Unit.

Norris, M. (2005), *Mixed-Tenure Housing Estates: Development, Design, Management and Outcomes,* Dublin, Housing Unit.

Treadwell-Shine, K., Kane, F., and Coates, D. (2008) *Management and Maintenance of Traveller-Specific Accommodation* Dublin, Centre for Housing Research

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Treadwell Shine, K. and Norris, M. (2006), *Housing Policy Discussion Series No 1 – Regenerating Local Authority Housing Estates: Review of Policy and Practice,* Dublin, Centre for Housing Research.

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