New Heating Solutions 2012

Prepared by the Research Unit, Northern Ireland Housing Executive

Contents

1.0 Introduction

1.1 OVERALL AIMS

The Housing Executive's Heating Policy Review notes that in the light of rising fuel prices and the concomitant rise in Fuel Poverty, together with ambitious local targets for using renewable energy, it is imperative therefore that the cost effectiveness of energy systems in NIHE are evaluated. Against this background Housing and Regeneration commissioned the Research Unit to undertake an (evaluation) study of a range of new heating solutions and their impact on tenants both in cost and usage. The overall aim of the research project is to examine tenant's views on satisfaction with the new heating systems.

1.2 METHODOLOGY

A broadly representative geographically dispersed sample of Housing Executive houses/tenants was drawn from the following sample frame comprising all NIHE properties with innovative heating systems:

Table A: Sample information

	Total	Sample	
		Drawn	Achieved
Partial solar panels	**2032**	**40**	17
Dry electric	**56**	**10**	4
Photovoltaic panels	**32**	**10**	5
Solar integrated roof	**5**	**5**	5
Solar ventilation	**55**	**10**	6
Wood pellet boilers	**33**	**33**	24
Wet electric	**5**	**6**	4
Ground source heat pump	**1**	**1**	1

The Research Unit sent a letter to the selected households detailing the nature of the survey. Fieldwork consisted of face to face interviews conducted by the Housing Executive's Research Unit. The final sample was reduced to 108 mainly due to voids. A total of 66 households completed the survey giving a response rate of 61% (Table B).

Table B: Response rate

	Number	%
Completed	66	61
No contact	41	38
Refusal	1	1
Total	**108**	**100**

2.0 Presentation of findings

In quantitative research the number of respondents to any questionnaire has an impact on the way in which information can be presented in the analysis. It is the Research Unit's policy, in accordance with standard practice, to present analysis from surveys of between 50 and 100 respondents in both numbers and percentages. Where the number of respondents is less than 50 numbers only are reported. Where findings are based on less than five respondents and may be of a sensitive nature, exact numbers are not reported to protect the anonymity of respondents.

Respondents provided information about their household based largely on the Household Reference Person (HRP). Otherwise known as the "highest income householder", the HRP must be a householder (i.e. a person in whose name the accommodation is owned or rented). Where there are joint householders, the person with the highest income is selected. If two or more householders have exactly the same income the oldest is selected.

The remainder of the report consists of the following sections and sub-sections including the Profile of Household Reference Persons (HRPs), detailed Key Findings by heating type, followed by Conclusions and Recommendations. There are also Appendix tables providing more detailed analysis for the all respondents combined.

3.0 Profile of Household Reference Persons (HRPs)

This paragraph provides a general background of the socio-demographic profile of ALL the tenants interviewed. Numbers are too small to analyse by heating type.

Age

- Equal proportions (16; 24%) of HRPs were aged 65 or older and aged between 16 and 34. More than one-fifth (14; 21%) were between 55 and 64 (Table 1).

Gender

- More than half (37; 56%) of HRPs were female and 29 (44%) were male (Table 2).

Employment status

- More than one-quarter (19; 29%) of HRPs were working at the time of the survey. More than one-quarter (17; 26%) were retired. Almost one-fifth (12; 18%) of HRPs were unemployed, either long-term or short-term and 11 (17%) were permanently sick/disabled (Table 3).

Marital status

- Almost half (30; 46%) of HRPs were single, one-fifth (13; 20%) were married, the remainder were separated, widowed or divorced (Table 4).

Disability

- More than half (36; 55%) of HRPs had no health problems. More than one-quarter (17; 26%) had a health problem/illness and 10 (15%) had both a health problem and illness/disability (Table 5).

Ethnicity

- All (66; 100%) of HRPs were white (Table 6).

Nationality

- More than three-quarters (51; 77%) of respondents described their nationality as British and 10 (15%) respondents were Irish. The remainder were of European origin (Table 7).

Income

- More than two-fifths (29; 44%) of HRPs had an approximate weekly income of between £141 and £300. More than one-fifth (14; 21%) had an approximate weekly income of between £101 and £140. (Table 8).

Benefits

- The main benefits received by HRPs were: housing benefit (33; 50%), a disability benefit (19; 29%) and income support (17; 26%) (Table 9).

Household religion

- Almost three-quarters (48; 73%) of respondents described their household religion as Protestant. Almost one-quarter (16; 24%) described their household religion as Catholic (Table 10).

4.0 Key Findings

4.1 PHYSICAL SURVEY

Full internal and external surveys were carried out in 54 dwellings from the survey target list. Surveys were carried out using the standard NIHCS survey form but household

interviews were not carried out since these had previously been conducted by members of the Research Section staff.

Properties were assessed under both the Fitness standard and the Housing Health & Safety Rating System.

Fitness was measured on a 4 point scale as follows.

1. Unfit: Unfit for habitation;
2. Defective: Fit for habitation but with a serious problem;
3. Acceptable: Fit for habitation but with some minor defects;
4. Satisfactory: Fit for habitation with no problems

No properties were found to be unfit. One property was found to be defective on freedom from damp. The remaining properties were either acceptable or satisfactory with the majority being satisfactory.

Category 2 Hazards under the Housing Health & Safety Rating System were identified in 3 properties. One was the property found to be defective due to damp. One was a hot surface hazard where a non standard electric radiant fire had been fitted by a previous tenant and one where a falls on the level hazard was due to the state of repair of communal paths and steps serving the property. Details of the hazards are also given in the property summary.

The surveys also identified some properties where there were other measures which could still be taken to further improve energy efficiency.

4.2 WOOD PELLET BOILER

23 interviews were carried out with households who had wood pellet boilers. The following results relate only to those respondents.

- Seven properties had full double glazing. Ten properties had partial double glazing.
- There was no evidence of cavity wall insulation in two properties although the owners claim it has been injected.
- Fifteen respondents said they had a secondary heating system. Of those, 12 said their secondary heating system was an electric fire. Three respondents said it was an open fire.
- Respondents were asked questions in relation to their heating patterns in the winter; Eight respondents said they kept their heating on all day. All respondents (15) who had wood pellet boilers heated their home for between 1-4 hours on weekday evenings. Fourteen respondents heated their home for between 1-4 hours on weekend evenings.
- Respondents were asked questions in relation to their heating patterns in the summer; fourteen respondents heated their home on weekday and weekend evenings for 1-2 hours. Fewer respondents (8) heated their home on weekday mornings and weekend daytimes.
- The majority (14) of respondents said they used the programmer to operate their heating system.

- Figures 1 and 2 below show comparisons between amounts spent weekly on fuel in both the most recent winter and previous summer. There are clear indications that there is a significant increase in the number of households spending a lower amount on fuel per week in the winter and summer. For example, eight respondents spent only £11-20 per week on fuel during the recent winter compared to two respondents in the previous one1. In the winter two respondents spent £41-50 per week, whereas for the recent winter no households spent this amount.

Figure 1: Comparison between amount spent on fuel currently in the winter and the previous winter. (Number of households by expenditure band)

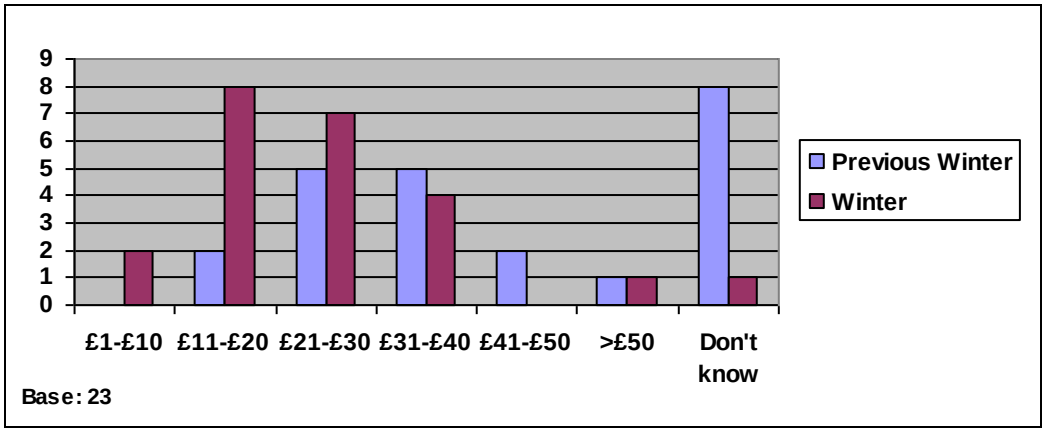


Figure 2: Comparison between amount spent on fuel currently in the summer and the previous summer. (Number of households by expenditure band)

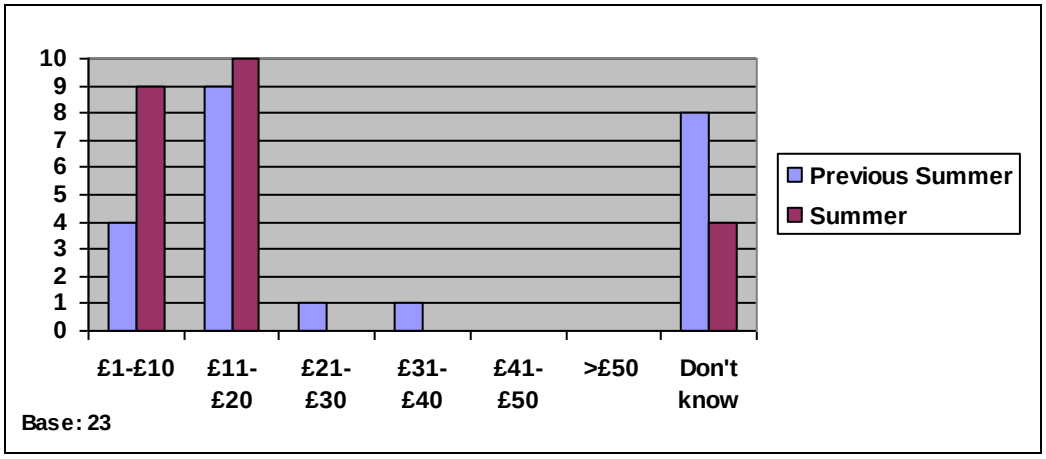


Table C:Satisfaction with heating

	Very satisfied/	Neither	Very dissatisfied/
The type of heating	17	4	2
The cost of running your system	19	2	2
The amount of heat you can get	19	0	4
The control over the level of heat	23	0	0
The ease of the use of the system	22	1	0
Ease of use of programmer	23	0	0

- Respondents were asked to give reasons for their dissatisfaction with any aspect of their heating system. Equal proportions of respondents (3 said they were very dissatisfied/dissatisfied because they found their heating system too expensive to run and thought it cooled down to quickly.

- Of those respondents who had wood pellet burners, four also had solar water heating panels to heat their water and 17 respondents had a back boiler with central heating to heat their water.

- Of the four respondents who had solar water heating panels; all thought it provided adequate hot water as indicated in the table below:

Table D: Satisfaction with Solar Water Heating Panel

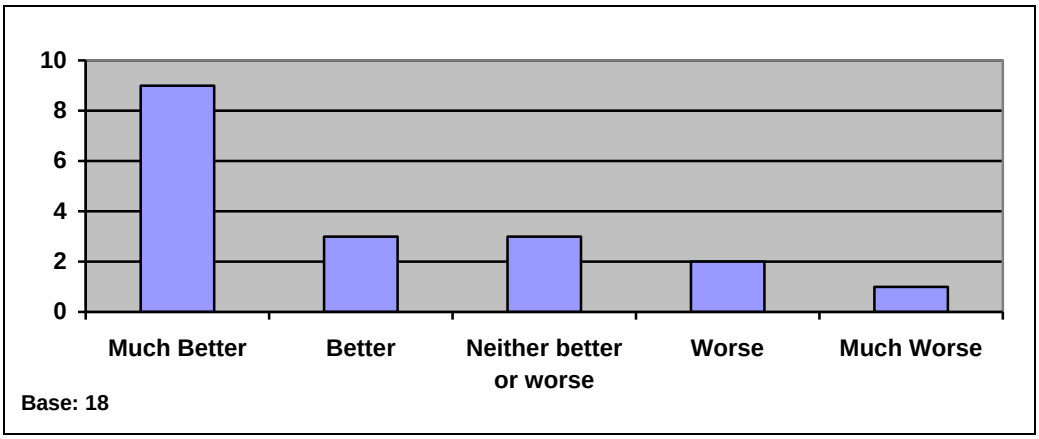
	Very satisfied/	Neither	Very dissatisfied/
The type of hot water system	4	0	0
The cost of running your system	4	0	0
The amount of hot water you	4	0	0
The control over the	4	0	0
The ease of the use of the	4	0	0

- Of those respondents who had wood pellet burners; none had solar photovoltaic panels.

- Of those respondents who had wood pellet burners, nine said their previous heating system was an open fire four said it was Economy 7 and four said it was oil heating. Five respondents did not know what their previous heating was and one respondent said they had gas heating.

- Figure 3 below shows how respondents felt their current system compared to their old system.

Figure 3: Overall how does your current system compare to your old system?



- Of those who thought it was worse said it was because they felt the wood pellet system was too costly and didn't provide enough heat.

- The results of the survey show high levels (17) of satisfaction with the type of heating. The survey also concludes that of those respondents who have solar water heating panels (4), all are satisfied with them. Generally, respondents indicated that they are happy with the new heating system/solar panels, stating that overall their new system is much better/better than their old system (12)

4.3 OIL

17 interviews were carried out with households who had oil heating. The following results relate only to those respondents. Although oil heating is not a new heating solution, all respondents within this category also had an innovative energy solution installed, e.g. Solar water heating panel, Solar Photovoltaic Panels or Solar ventilation system.

- Ten properties had full double glazing, a further two properties had double glazing but the hall window and doors are still single glazed.

- Three properties had no cavity wall insulation. Two further properties have no physical signs of cavity wall insulation but owners say it has been injected.

- Almost three-quarters (12) of respondents said they had a secondary heating system. Of those, two-thirds (8) said their secondary heating system was an electric fire. One-third (4) said it was a solar ventilation system.

- Respondents were asked questions in relation to their heating patterns in the winter; five respondents had their heating on all day. Ten respondents had their heating on for anything between 1-4 hours on weekday afternoons, evenings and weekend evenings.

- Respondents were asked questions in relation to their heating patterns in the summer; seven respondents had their heating on for between 1-4 hours on the weekend evenings. Six

respondents had their heating on for between 1-4 hours on the weekday evenings. One respondent had their heating on all day.

- The majority (12) of respondents said they used the programmer to operate their heating system.

- Figures 4 and 5 below show comparisons between amounts spent on fuel in both the winter and summer currently and previously2. The figures show a significant increase in the amount spent on oil in both the winter and summer compared to the previous year, this is possibly as a result of significant increases in the price of oil.

Figure 4: Comparisons between amount spent on fuel currently in the winter and the previous winter. (Number of households by expenditure band)

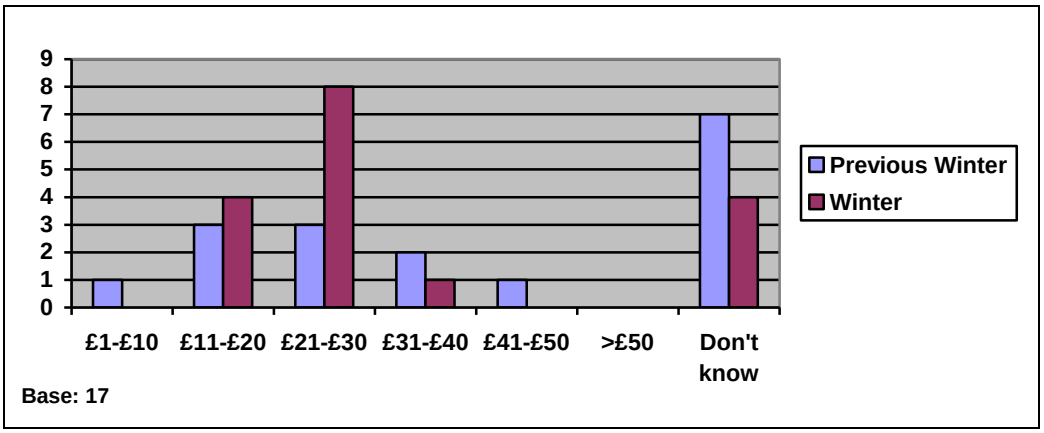


Figure 5: Comparisons between amount spent on fuel currently in the summer and the previous summer.(Number of households by expenditure band)

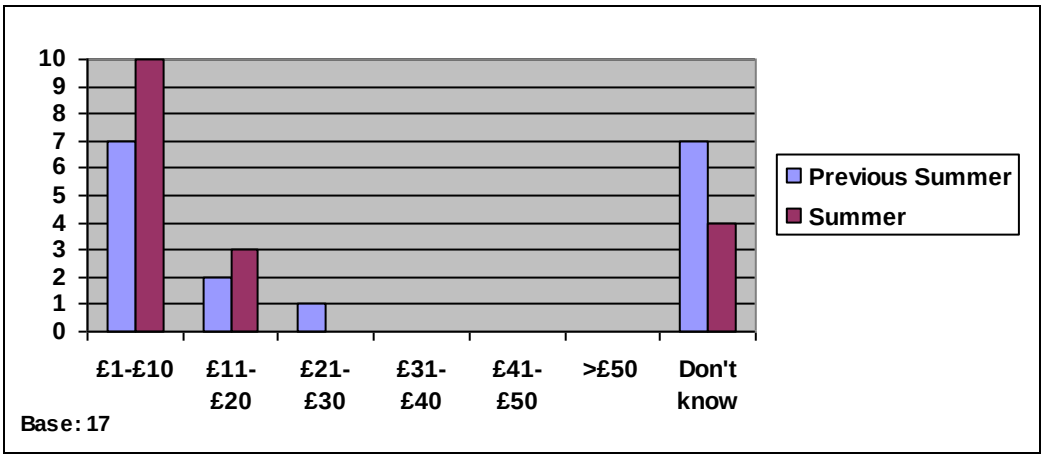


Table E: Satisfaction with Heating

	Very	Neither	Very dissatisfied
The type of heating	14	0	3
The cost of running your system	10	0	7
The amount of heat you can get	14	0	3
The control over the level of heat	16	0	1
The ease of the use of the system	16	0	1
Ease of use of programmer	15	0	2
Cleanliness	16	0	1

- Respondents were asked to give reasons for their dissatisfaction with any aspect of their heating system. Seven respondents said they were dissatisfied because they found their heating system too expensive to run.

- Of those respondents who had oil heating, 10 also had solar water heating panels to heat their water. Six respondents had a back boiler to heat their water.

- Of the 10 respondents who had solar water heating panels, four thought it provided adequate hot water, six respondents thought it didn't.

- Of those respondent (6) who felt it didn't provide adequate hot water, five said they had to boost their supply sometimes/regularly.

- Table F below shows satisfaction levels with solar water heating panels; nine respondents were satisfied with the ease of the use of the system.

Table F: Satisfaction with Solar Water Heating Panel

	Very	Neither	Very
The type of hot water system	7	1	2
The cost of running your	7	1	2
The amount of hot water you	8	0	2
The control over the	8	0	2
The ease of the use of the	9	0	1

- Respondents were asked to give reasons for their dissatisfaction with any aspect of their hot water system. Respondents said they were very dissatisfied/dissatisfied because they found the panels varied too much, i.e. too hot in the summer and too cold in the winter. One respondent also stated that the solar panels were not working.

- Of those respondents who had oil heating, three had solar photovoltaic panels. Table G below shows satisfaction levels with the solar photovoltaic panels.

Table G: Satisfaction with Solar Photovoltaic Panels

	Very	Neither	Very dissatisfied
The type of solar system	2	0	1
The amount electricity you can get	2	0	1
The control over the level of	2	0	1
The ease of the use of the system	2	0	1

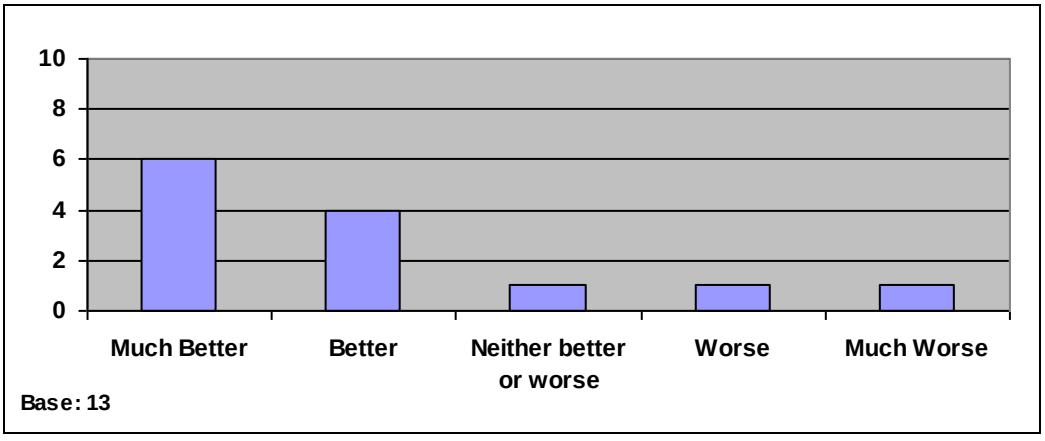
- Respondents were asked to give reasons for their dissatisfaction with any aspect of their solar photovoltaic panels. One respondent said they were dissatisfied because it hadn't worked the whole time they were living there.

- Two respondents said they don't sell electricity back to the grid therefore they don't get a refund from PowerNI. One respondent was neither satisfied nor dissatisfied with the refund they get back from PowerNI.

- Of those respondents who had oil heating, 12 said their previous heating system was an open fire.

- Figure 6 below shows how respondents felt their current system compared to their old system.

Figure 6: Overall how does your current system compare to your old system?



- One of the two respondents who stated that the current system was worse/much worse, noted that it wasn't working; the other that it doesn't hold the heat.

- The results of the survey show high levels (14) of satisfaction with the type of heating. The survey also indicates that of those respondents who have Solar Water heating panels (10), 7 are satisfied with them and of those respondents who have Solar Photovoltaic Panels (3), 2 are satisfied. Generally respondents indicate that they are happy with the new heating system/solar panels, stating that overall their new system is better than their old system (10).

4.4 MAINS GAS

13 interviews were carried out with households who had mains gas. The following results relate only to those respondents

- Eight properties had full double glazing and one property had no double glazing at all and one property had partial double glazing, i.e. the hall window and doors were still single glazed.

- One property had no cavity wall insulation as it is concrete built. One property had no cavity wall insulation.

- Six respondents said they had a secondary heating system, all of whom said they had an electric fire.

- Respondents were asked questions in relation to their heating patterns in the winter; eight respondents kept their heating on all day. Five respondents heated their house for 1-2 hours on weekday and weekend evenings. Two respondents heated their home 1-2 hours on weekday lunchtimes.

- Respondents were asked questions in relation to their heating patterns in the summer; eight respondents had their heating on weekday evenings for 1-2 hours. Five respondents had their heating on weekend evenings for 1-2 hours.

- The majority (5) of respondents use the programmer to operate their heating system. Four respondents use the on/off button and three respondents use a combination of the programmer and boost to operate their heating system.

- Figures 7 and 8 below show comparisons between amounts spent on fuel in both the winter and summer currently and previously. There are clear indications that there is a significant increase in the number of households spending a lower amount on fuel per week in the winter and summer. For example, three respondents spent only £11-20 per week on fuel during the recent winter compared to none in the previous one3. In the previous winter three respondents spent £41-50 per week, whereas for the recent winter no households spent this amount.

Figure 7: Comparisons between amount spent on fuel currently in the winter and the previous winter. (Number of households by expenditure band)

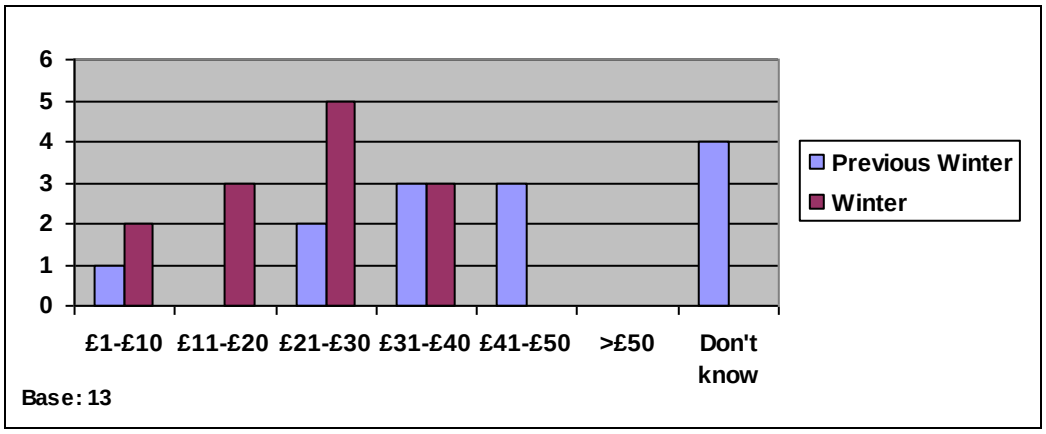
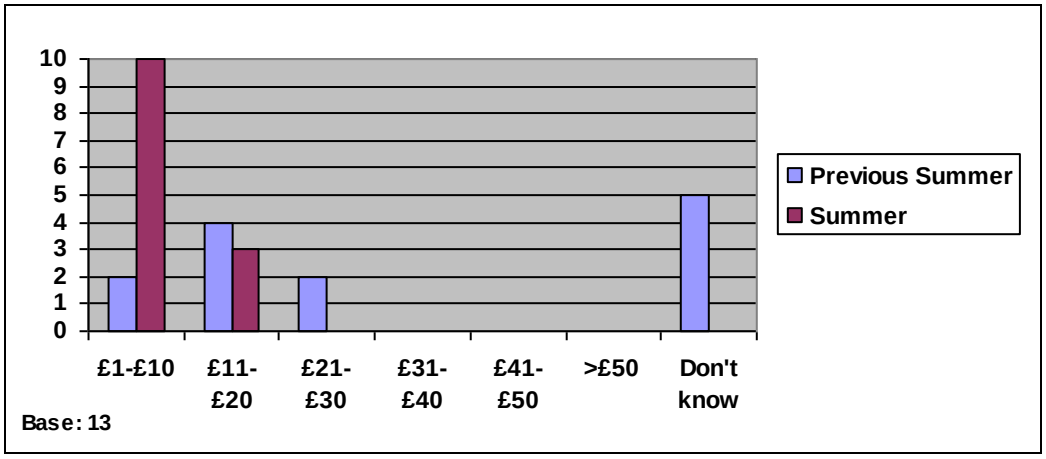


Figure 8: Comparisons between amount spent on fuel currently in the summer and the previous summer. (Number of households by expenditure band)



- Eight respondents said they paid for their fuel on a pay as you go basis, stating it was as and when needed

- The majority of respondents said they paid for their fuel through PayZone/PayPal

- Respondents were asked about their satisfaction with different aspects of their heating systems. Table B below details their responses; 13 respondents were very satisfied/satisfied with the ease of use and the cleanliness of the system. Twelve respondents were very satisfied/satisfied with the type of heating, the control over the level of heat and the ease of the use of the programmer.

Table H: Satisfaction with Heating

	Very satisfied/	Neither	Very dissatisfied/
The type of heating	12	0	1
The cost of running your system	10	0	3
The amount of heat you can get	11	0	2
The control over the level of heat	12	0	1
The ease of the use of the system	13	0	0
Ease of use of programmer	12	0	1
Cleanliness	13	0	0

- Respondents were asked to give reasons for their dissatisfaction with any aspect of their heating system. Respondents said they were very dissatisfied/dissatisfied because they found their heating system too expensive to run, the amount of heat is not enough, they don't understand the programmer.

- Of those respondents who had mains gas, all (13) also had solar water heating panels to heat their water.

- Of the 13 respondents who had solar water heating panels, seven thought it provided adequate hot water, six respondents thought it didn't.

- Of those respondent (6) who felt it didn't provide adequate hot water, five said they had to boost their supply regularly. Table I shows high levels of satisfaction with the type of system (12) and the ease of use of the system (12).

Table I: Satisfaction with Solar Water Heating Panel

	Very satisfied	Neither	Very dissatisfied
The type of hot water	12	0	1
The cost of running your	11	0	2
The amount of hot water	8	0	5
The control over the	10	0	3
The ease of the use of the	12	0	1

- Respondents were asked to give reasons for their dissatisfaction with any aspect of their hot water system. Respondents said they were very dissatisfied/dissatisfied because they found the panels varied too much, i.e. too hot in the summer and too cold in the winter. They also stated that in the winter the hot water system has to be boosted. One respondent stated that their hot water system was not working.

- Of those respondents who had mains gas, three had solar photovoltaic panels.

Table J:Satisfaction with Solar Photovoltaic Panels

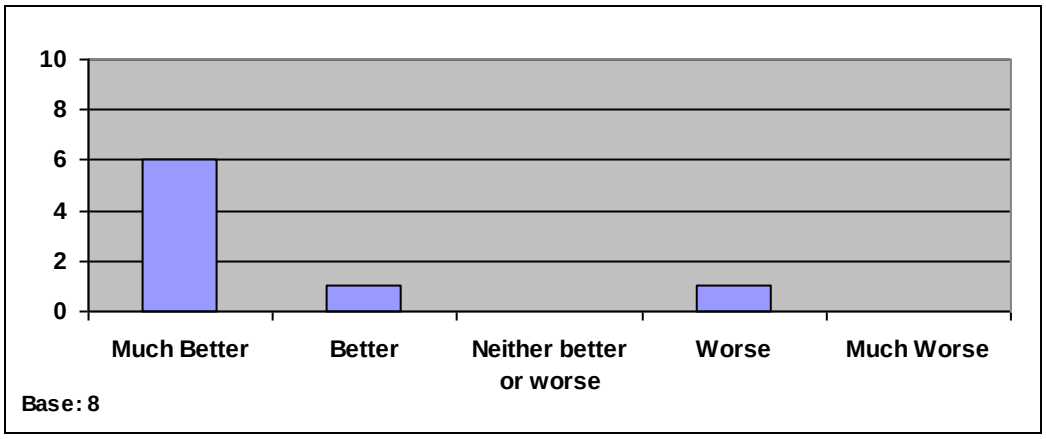
	Very	Neither	Very dissatisfied
The type of solar system	3	0	0
The amount of electricity you can	3	0	0
The control over the level of	3	0	0
The ease of the use of the system	3	0	0

- Two respondents were satisfied with the refund they received from PowerNI when they sold electricity back to the grid. One respondent was neither satisfied nor dissatisfied.

- Of those respondents who had mains gas, four said their previous heating system was a closed coal fire, two had an open fire, one had Econmoy7 and one had oil heating. Three respondents had the same heating system previously and two respondents didn't know what their previous system was.

- Figure 9 below shows how respondents felt their current system compared to their old system.

Figure 9: Overall how does your current system compare to your old system?



- Reasons for finding the system worse were: the system is too costly and doesn't provide as much heat.

- The results of the survey show high levels (12) of satisfaction with the type of heating. The survey also concludes that of those respondents who have Solar Water heating panels (13), 12 are satisfied with them and of those respondents who have Solar Photovoltaic Panels (3) all are satisfied. Generally respondents indicate that they are happy with the new heating system/solar panels, stating that overall their new system is better than their old system (7).

4.5 ECONOMY 7

4 interviews were carried out with those households who had Economy 7. The following results relate only to those respondents

- Two properties have double glazing and two properties have cavity wall insulation. There is no loft insulation in any property.

- Three respondents said they had a secondary heating system. Of those, all (3) said their secondary heating system was an electric fire.

- Respondents were asked questions in relation to their heating patterns in the winter; three respondents have their heating on all day. The remaining respondent (1) has their heating on for 1-2 hours on weekday mornings and evenings and weekend daytimes and evenings.

- Respondents were asked questions in relation to their heating patterns in the summer; three respondents said they never had their heating on in the summer. One respondent had their heating on weekday and weekend evenings for 1-2 hours.

- Three respondents use the on/off to operate their heating system and one respondent uses the programmer.

- Figures 10 and 11 below show comparisons between amounts spent on fuel in both the winter and summer currently and previously. Figure 10 shows that fewer respondents are spending £31-40 per week on fuel and there is also an increase in the number of respondents spending £11-20 per week.

Figure 10: Comparisons between amount spent on fuel currently in the winter and the previous winter. (Number of households by expenditure band)

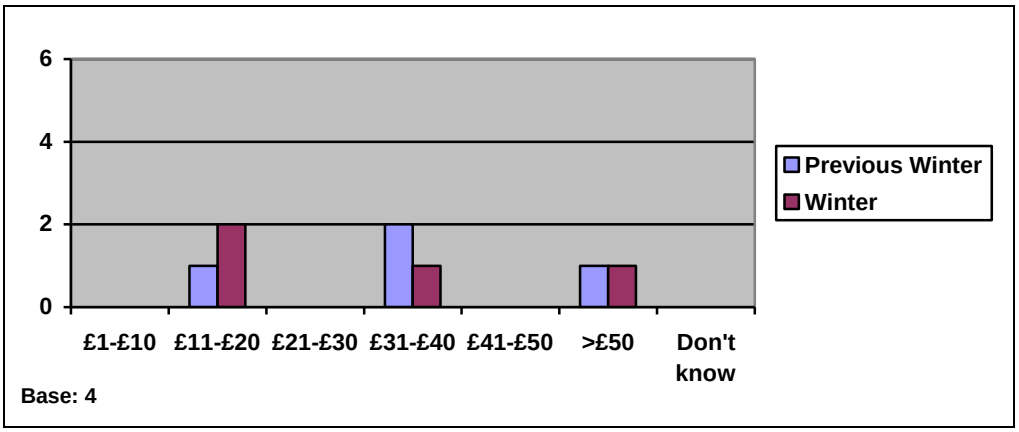
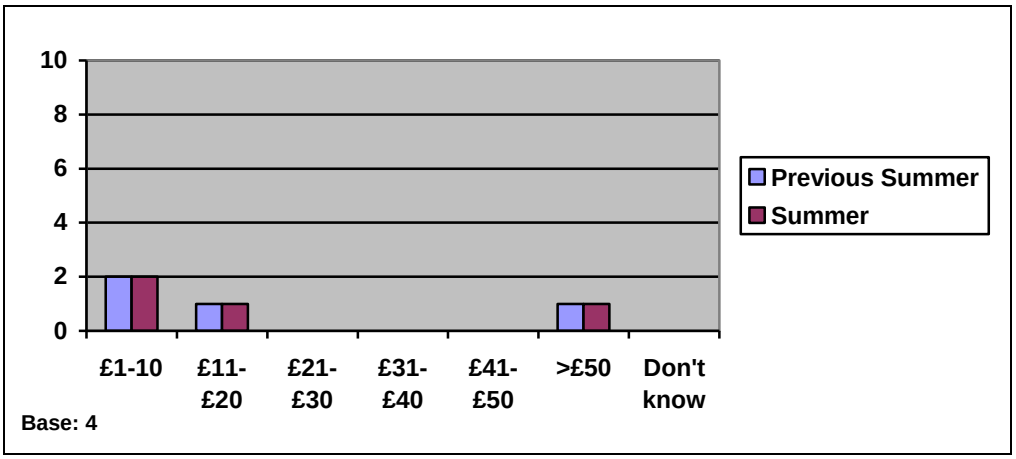


Figure 11: Comparisons between amount spent on fuel currently in the summer and the previous summer.(Number of households by expenditure band)



- All respondents said they paid for their fuel on a pay as you go basis. Three respondents stated it was as and when needed and one respondent said they paid for it at the shop across the road.

- All respondents said they paid for their fuel through PayZone/PayPal.

- Respondents were asked about their satisfaction with different aspects of their heating systems. Table B below shows high levels of satisfaction with the amount of heat they could get (4), the ease of use of the system (4), ease of use of programmer (4) and cleanliness.

Table K: Satisfaction with Heating

	Very	Neither	Very dissatisfied
The type of heating	1	0	3
The cost of running your system	1	0	3
The amount of heat you can get	4	0	0
The control over the level of heat	3	0	1
The ease of the use of the system	4	0	0
Ease of use of programmer	4	0	0
Cleanliness	4	0	0

- Respondents were asked to give reasons for their dissatisfaction with any aspect of their heating system. There were higher levels of dissatisfaction with the type of heating (3) and the cost of running the system (3). Respondents said they were very dissatisfied/dissatisfied because they found their heating system too expensive to run, or they preferred the gas system.

- Of those respondents (4) who had Economy 7, all had solar photovoltaic panels.

Table L: Satisfaction with Solar Photovoltaic Panels

	Very satisfied	Neither	Very dissatisfied
The type of solar system	2	2	0
The amount of electricity	1	2	1
The control over the	1	2	1
The ease of the use of the	1	2	1

- Respondents were asked to give reasons for their dissatisfaction with any aspect of their solar photovoltaic panels. One respondent said they were dissatisfied because it was not working properly.

- Three respondents were satisfied with the refund they received from PowerNI when they sold electricity back to the grid. One respondent didn't sell back

- Of those respondents who had Economy 7, all said their previous heating system was the same.

- The results of the survey show high levels (3) of dissatisfaction with the Economy7 heating system. The survey also concludes that of those respondents who have Solar Photovoltaic Panels (4) two are satisfied. Generally respondents indicate that they are happy with the heating system/solar panels, however they found it too expensive to run.

4.6 GROUND SOURCE HEAT PUMP

1 interview was carried out with a household with a Ground Source Heat Pump. The following results relate only to that respondent

- The respondent was asked questions in relation to their heating patterns in the winter; the respondent had their heating on for 3-4 hours on weekday afternoons and evenings and weekend daytimes and evenings.

- The respondent was asked questions in relation to their heating patterns in the summer; the respondent never had their heating on during the summer.

- The respondent spent between £21 and £30 per week on fuel during the most recent winter period, but could not remember the comparative figure for the previous winter. During the summer period less than £10 was spent per week on fuel.

- The respondent used the programmer to operate their heating system.

- The respondent said they paid for their fuel monthly by direct debit.

- The respondent was asked about their satisfaction with different aspects of their heating systems. Table M below details the responses:

Table M: Satisfaction with Heating

	Very	Neither	Very dissatisfied
The type of heating	1	0	0
The cost of running your system	1	0	0
The amount of heat you can get	1	0	0
The control over the level of heat	1	0	0
The ease of the use of the system	1	0	0
Ease of use of programmer	1	0	0
Cleanliness	1	0	0

- The respondent also had solar water heating panels to heat their water.

- The respondent felt that the panels adequately heated their water and stated that their previous hot water system was a back boiler with an immersion heater.

Table N: Satisfaction with Solar Water Heating Panel

	Very	Neither	Very dissatisfied
The type of hot water system	1	0	0
The cost of running your system	1	0	0
The amount of hot water you can get	1	0	0
The control over the temperature	1	0	0
The ease of the use of the system	1	0	0

- The respondent said their previous heating system was an open fire and felt the ground source heat pump was much better than their old system.

- The results of the survey show that overall the respondent is satisfied with the ground source heat pump and the solar water heating panel.

4.7 WET ELECTRIC

4 interviews were carried out with those households who had a wet electric system. The following results relate only to those respondents

- There was double glazing in all four properties.
- There was no cavity wall insulation in all properties.
- Two of the four respondents had a secondary heating system, which they stated as being an electric fire.
- Respondents were asked questions in relation to their heating patterns in the winter; two respondents had their heating on for anything between 1-6 hours weekday afternoons and weekday evenings. One respondent had their heating on for 5-6 hours weekend daytime and evenings.
- Respondents were asked questions in relation to their heating patterns in the summer; all respondents (4) did not use their heating in the summer.
- Two respondents use the programmer to operate their heating system and two respondents use the on/off button.
- Analysis of the respondents' estimates of expenditure for winter provided some evidence of a reduction in household spending but comparisons with previous winter were inconclusive, because respondents' were unsure about expenditure during this earlier period.
- Three respondents said they paid for their fuel on a pay as you go basis as and when needed by PayZone/PayPal.
- Respondents were asked about their satisfaction with different aspects of their heating systems. Table O below shows high levels of satisfaction with the type of heating (4), the amount of heat (4), the control over the level of heat (4) and cleanliness.

Table O: Satisfaction with Heating

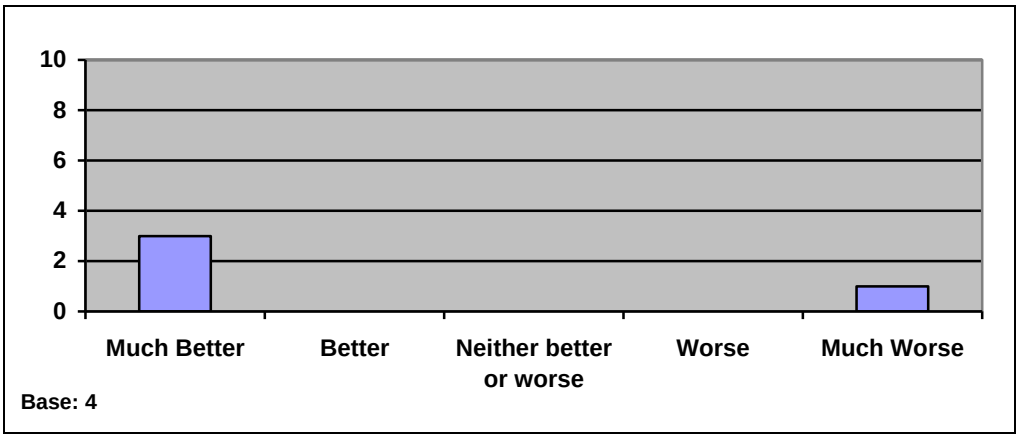
	Very satisfied	Neither	Very dissatisfied
The type of heating	4	0	0
The cost of running your system	3	1	0
The amount of heat you can get	4	0	0
The control over the level of heat	4	0	0
The ease of the use of the system	3	0	1
Ease of use of programmer	2	1	1
Cleanliness	4	0	0

- Respondents were asked to give reasons for their dissatisfaction with any aspect of their heating system. Respondents said they were dissatisfied because they hadn't been shown how to use the system properly.

- The respondents had no solar water heating panels or solar photovoltaic panels.

- All four respondents said their previous heating system was Economy 7. Figure 12 below shows how respondents felt their current system compared to their old system. One respondent felt it was much worse because they felt the system did not hold the heat.

Figure 12: Overall how does your current system compare to your old system?



- The results of the survey show high levels (4) of satisfaction with the type of heating the respondents have. Generally respondents indicate that they are happy with the new heating system stating that overall their new system is better than their old system (3)

4.8 DRY ELECTRIC

4 interviews were carried out with those households who had a dry electric system. The following results relate only to those respondents in Carnet House

- There was no loft insulation and no cavity wall insulation as all houses had a concrete frame.

- One property had a very low damp and mould hazard (Cat 2 Band) due to condensation problems

- Respondents were asked questions in relation to their heating patterns in the winter; one respondent kept their heating on all day. Two respondents had their heating on for anything between 1-4 hours on weekday evenings. One respondent had their heating on for 3-4 hours on weekday morning, weekday afternoon and weekend evening.

- Respondents were asked questions in relation to their heating patterns in the summer; three respondents said they never had their heating on in the summer. One respondent had their heating on for 3-4 hours each weekday mornings and weekday evenings.

- Three respondents use the on/off button to operate their heating system and one respondent uses the programmer.

- Analysis of the respondents' estimates of expenditure for winter provided little evidence of a change in household spending because respondents' were unsure about expenditure during the earlier periods.

- Two respondents said they paid for their fuel on a pay-as-you-go basis as and when needed. One respondent paid weekly and one respondent paid monthly.

- Respondents were asked about their satisfaction with different aspects of their heating systems. Table P below shows high levels of dissatisfaction with the type of heating (4), the cost of running the system (3) and the amount of heat you could get (3). There were high levels of satisfaction with the ease of use of the system (3), and the ease of use of the programmer (3).

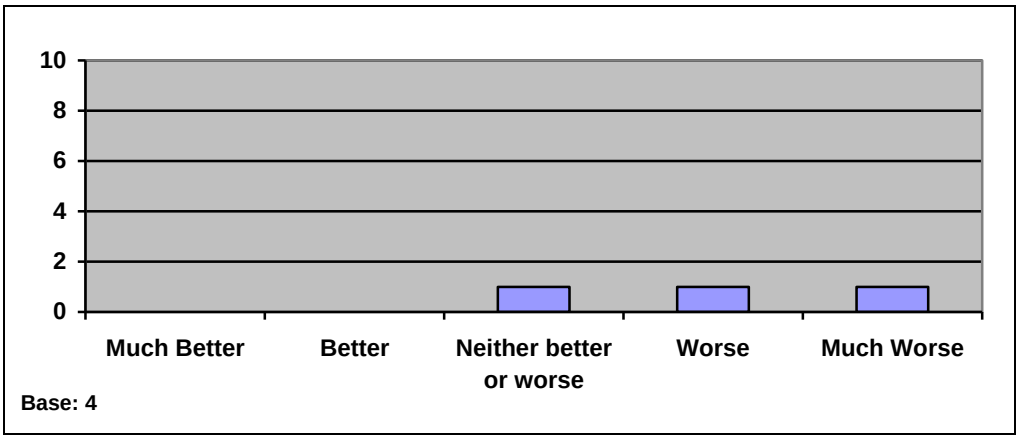
Table P: Satisfaction with Heating

	Very satisfied	Neither	Very dissatisfied
The type of heating	0	0	**4**
The cost of running your system	1	0	**3**
The amount of heat you can get	1	0	**3**
The control over the level of heat	2	1	**1**
The ease of the use of the system	3	1	**0**
Ease of use of programmer	3	1	**0**
Cleanliness	**3**	**1**	**0**

- Respondents were asked to give reasons for their dissatisfaction with any aspect of their heating system. Respondents said they were dissatisfied because they found their heating system too expensive to run and the amount of heat it produced was not enough.

- Three respondents said their previous heating system was Economy 7 and two felt that the new dry electric system was worse than their old system. When asked why respondents said it was too costly, hard to understand and didn't retain the heat (Figure 13).

Figure 13: Overall how does your current system compare to your old system?



- The results of this part of the survey show high levels (4) of dissatisfaction with this type of heating. Generally respondents (2) indicate that they are dissatisfied with the heating system as it is too costly, hard to understand and doesn't retain the heat.

5.0 General Comments

Respondents were asked if there were any other comments they would like to make in regards to their new heating system/solar panels. Thirty four respondents gave a comment. The majority (20) of respondents are generally happy with the system while seven respondents said they think the system is not working properly. Detailed figures can be found in Table 43.

6.0 Conclusions

The results of the survey generally show high levels (74%) of satisfaction with the type of heating respondents have. However, the dry electric system in Carnet House is the exception to this rule. The survey also concludes that of those respondents who have solar water heating panels (28), 71% are satisfied with them and of those respondents who have solar photovoltaic panels (10) 60% are satisfied. Generally respondents indicate that they are happy with the new heating system/solar panels, stating that overall their new system is much better/better than their old system (70%). In most cases household expenditure on fuel fell following the introduction of the new systems. However, this conclusion must be treated with some caution as the most recent winter was significantly milder than the previous one.

A few issues emerged from the survey that need to be addressed:

- Better maintenance: Respondents indicated that their heating system/solar panels were not working properly or not working at all.

- Tenant awareness: Respondents stated that they didn't understand the system or were never shown how to use it or didn't know how to use it at all.

- Overall energy efficiency check: the physical survey has shown that although the new heating system/solar panels are in place, one property was found to be defective on damp

and in one property there was evidence of significant condensation. A number of houses had no cavity wall insulation and a number had either no or only partial double glazing.

- Carnet House: the relatively low level of satisfaction with the new heating system in Carnet House. It has been agreed to follow up the survey focusing particularly on issues arising from Carnet House.

7.0 Appendix Tables

Table 1:Age of Household Reference Person

	Number	%
16-24	8	12.1
25-34	8	12.1
35-44	11	16.7
45-54	9	13.6
55-64	14	21.2
65+	16	24.2
Total	**66**	**100**

Table 2:Gender of Household Reference Person

	Number	%
Female	37	56.1
Male	29	43.9
Total	**66**	**100**

Table 3:Employment status of Household Reference Person

	Number	%
Retired (excludes looking after home)	17	25.8
Permanently sick/disabled	11	16.7
Working part-time	9	13.6
Looking after family/home	7	10.6
Working full-time	7	10.6
Not working long term (>1year)	6	9.1
Not working short term (<1year)	6	9.1
Self employed	<5	4.5
Total	**66**	**100.0**

Table 4:Marital status of Household Reference Person

	Number	%
Single (never married)	30	45.5
Married (first marriage)	13	19.7
Separated (but still legally married)	8	12.1
Widowed (but not legally remarried)	8	12.1
Divorced (but not legally remarried)	7	10.6
Total	**66**	**100.0**

Table 5:Does the Household Reference Person have any long-term illness, health problem or disability which limits his/her daily activities or the work he/she can do?

	Number	%
Has no such health problems	36	54.5
Yes, has a health problem/illness which limits activities	17	25.8
Yes, has BOTH a health problem/illness and a disability	10	15.2
Yes, has a disability which limits activities	<5	4.5
Total	**66**	**100.0**

Table 6:Ethnicity of Household Reference Person

	Number	%
White	66	100
Total	**66**	**100.0**

Table 7:Nationality of Household Reference Person

	Number	%
British	51	77.3
Irish	10	15.2
Polish	<5	1.5
Other	5	6.1
Total	**66**	**100.0**

Table 8:Approximate total gross weekly income from all sources of HRP and partner (if applicable) before deductions

	Number	%
Less than £60	<5	1.5
£61-£80	7	10.6
£81-£100	<5	4.5
£101-£120	5	7.6
£121-£140	9	13.6
£141-£200	14	21.2
£201-£300	15	22.7
£301+	<5	6.1
Don't know	7	10.6
Total	**66**	**100.0**

Table 9:Does the Household Reference Person receive any of the following benefits?

	Yes	No	Don't	Total
Child benefit	14	51	<5	66
Child tax credit	12	53	<5	55
Housing benefit	33	32	<5	55
Working tax credit	5	60	<5	55
A disability benefit	19	46	<5	82
Income support	17	48	<5	55
Retirement pension (including	15	50	<5	55
Incapacity benefit	7	58	<5	55
Pension credit	9	56	<5	55
Jobseeker's allowance	7	58	<5	55
Any other benefits	9	56	<5	55

Table 10 Household religion

	Number	%
Protestant	48	72.7
Catholic	16	24.2
None	<5	3.0
Total	**66**	**100.0**

Table 11 Which of the following best describes your home?

	Number	%
House	37	56.1
Bungalow	17	25.8
Flats	9	13.6
Multi-storey	<5	4.5
Total	**66**	**100.0**

Table 12 How many bedrooms does your home have?

	Number	%
1 bedroom	8	12.1
2 bedrooms	18	27.3
3 bedrooms	39	59.1
Bedsit	<5	1.5
Total	**66**	**100.0**

Table 13 What type of heating do you have in your home?

	Number	%
Wood pellet boiler	23	34.8
Oil fired boiler with radiators	17	25.8
Mains gas	13	19.7
Economy 7	>5	6.1
Ground source heat pump	<5	1.5
Other	8	12.1
Total	**66**	**100**

Table 14 Please specify other

	Number	%
Wet electric	<5	50.0
Dry electric	<5	50.0
Total	8	100.0
Not applicable	59	
All respondents	66	

Table 15 Do you have a secondary heating system?

	Number	%
Yes	38	57.6
No	28	42.4
Total	**66**	**100.0**

Table 16 Please state what secondary system you do have

	Number	%
Solar ventilation system	4	10.5
Other	34	89.5
Total	38	100.0
Not applicable	28	
All respondents	66	

Table 17 Please state other secondary heating system

	Number	%
Electric fire	31	90.0
Open fire	3	10.0
Total	34	100.0
Not applicable	32	
All respondents	66	

Table 18 How often do you put your heating on in the winter…

	Yes	%
All day/all the time	25	37.9
Weekday morning (9am-12pm)	26	63.4
Weekday lunchtime (12pm-2pm)	12	29.3
Weekday afternoon (2pm-5pm)	25	61.0
Weekday evening	36	87.8
Weekend daytimes	27	65.9
Weekend evenings	32	78.0

Base: All respondents

Table 19 How often do you put your heating on in the summer…

	Yes (Number)	%
All day/all the time	1	1.5
Weekday morning (9am-12pm)	15	28.8
Weekday lunchtime (12pm-2pm)	3	5.8
Weekday afternoon (2pm-5pm)	4	7.7
Weekday evening	30	57.7
Weekend daytimes	14	26.9
Weekend evenings	27	51.9

Base: All respondents

Table 20 Which of the following do you use to operate your heating system

	Number	%
Programmer	36	54.5
On/off button	20	30.3
Boost	4	6.1
Combination	6	9.1
Total	**66**	**100.0**

Table 21 On average how much would you spend per week on fuel in the winter?

	Number	%
£1-£10	6	9.1
£11-£20	18	27.3
£21-£30	21	31.8
£31-£40	9	13.6
>£50	3	4.5
Don't know	9	13.6
Total	**66**	**100.0**

Table 22 On average how much would you spend per week on fuel in the summer?

	Number	%
£1-£10	35	53
£11-£20	17	25.8
>£50	1	1.5
Don't know	13	19.7
Total	**66**	**100.0**

Table 23 Thinking back on average how much would you spend per week previously on fuel in the winter?

	Number	%
£1-£10	2	3.0
£11-£20	9	13.6
£21-£30	11	16.7
£31-£40	12	18.2

£41-£50	6	9.1
>£50	3	4.5
Don't know	23	34.8
Total	**66**	**100.0**

Table 24 Thinking back on average how much would you spend per week previously on fuel in the summer?

	Number	%
£1-£10	19	28.8
£11-£20	16	24.2
£21-£30	4	6.1
£31-£40	1	1.5
>£50	1	1.5
None	1	1.5
Don't know	24	36.4
Total	**66**	**100.0**

Table 25 How often do you pay for your fuel?

	Number	%
Pay as you go	48	72.7
Weekly	11	16.7
Monthly	7	10.6
Total	**66**	**100.0**

Table 26 Please specify Pay as you go

	Number	%
Every 6 months	1	2.1
As and when needed	39	81.3
Top up service	2	4.2
In shop across the road	3	6.3
Every 3 months	1	2.1
Card meter	2	4.2
Total	48	100.0
Not applicable	18	
All respondents	**66**	

Table 27 How do you pay for your fuel?

	Number	%
Post office	2	3.0
PayZone/PayPal	23	34.8
Direct to fuel supplier	38	57.6
Direct Debit	3	4.5
Total	**66**	**100.0**

Table 28 How satisfied are you with….

	Very Satisfied		Satisfied		Neither		Dissatisfied		Very dissatisfied	
	N	%	N	%	N	%	N	%	N	%
The type of heating	16	24.2	33	50.0	4	6.1	11	16.7	2	3.0
The cost of running your system	10	15.2	35	53.0	3	4.5	15	22.7	3	4.5
The amount of heat you can get	15	22.7	39	59.1	0	0	10	15.2	2	3.0
The control over the level of heat	12	18.2	49	74.2	1	1.5	3	4.5	1	1.5
The ease of use of the system	10	15.2	52	78.8	2	3.0	1	1.5	1	1.5
The ease of use of the programmer	10	15.2	50	75.8	2	3.0	3	4.5	1	1.5
Cleanliness	9	13.6	55	83.3	1	1.5	1	1.5	0	0

Table 29 If very dissatisfied/dissatisfied please state why

	Number	%
Too expensive	17	60.7
Cools down too quickly	3	10.7
Amount of heat is not enough	2	7.1
House is very damp therefore heating makes no difference	2	7.1
Haven't been shown how to use it	1	3.6
Not as much heat as previous system	1	3.6
Prefer the gas system	1	3.6
Don't understand the programmer	1	3.6
Total	28	100.0
Not applicable	38	
All respondents	66	

Table 30 What type of water system do you have?

	Number	%
Solar water heating panel	28	42.4
Boiler with central heating	31	47.0
Boiler (water heating only)	3	4.5

Immersion heater	2	3.0
Other	2	3.0
Total	**66**	**100.0**

Table 31 does your hot water system provide adequate hot water?

	Number	%
Yes	16	57.1
No	12	42.9
Total	28	100.0
Not applicable	38	
All respondents	**66**	

Table 32 How often do you boost your supply of hot water?

	Number	%
Never	2	16.7
Sometimes	2	16.7
Regularly	8	66.7
Total	12	100.0
Not applicable	54	
	66	

Table 33 What was your hot water system previous to this one?

	Number	%
Back boiler and immersion heater	11	39.3
Immersion heater	5	17.9
Same	3	10.7
Oil boiler	2	7.1
Glass fronted fire and back boiler	1	3.6
Don't know	6	21.4
Total	28	100.0
Not applicable	38	
	66	

Table 34 How satisfied are you with….

	Very Satisfied		Satisfied		Neither		Dissatisfied		Very dissatisfied	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
The type of hot water system	4	14.3	20	71.4	1	3.6	1	3.6	2	7.1
The cost of running your system	3	10.7	20	71.4	1	3.6	2	7.1	2	7.1
The amount of hot water	3	10.7	18	64.3	0	0	5	17.9	2	7.1

you can get										
The control over the temperature	3	10.7	20	71.4	0	0	3	10.7	2	7.1
The ease of use of the system	3	10.7	23	82.1	0	0	0	0	2	7.1

Base: 28 respondents

Table 35 If dissatisfied/very dissatisfied, why?

	Number	%
It varies; hot in the summer, cold in the winter	5	62.5
Not working	2	25.0
In the winter it is lukewarm and has to be boosted	1	12.5
Total	8	100.0
Not applicable	58	
	66	

Table 36 Do you have Solar Photovoltaic Panels?

	Number	%
Yes	10	15.2
No	56	84.8
Total	**66**	**100.0**

Table 37 How satisfied are you with….

	Very Satisfied		Satisfied		Neither		Dissatisfied		Very dissatisfied	
	N	%	N	%	N	%	N	%	N	%
The type of solar system	1	1.5	6	60.0	2	20.0	1	10.0	0	0
The amount of electricity you can get	1	10.0	5	50.0	2	20.0	2	20.0	0	0
The control over the level of electric	1	10.0	5	50.0	2	20.0	2	20.0	0	0
The ease of use of the system	1	10.0	5	50.0	2	20.0	2	20.0	0	0

Table 38 If dissatisfied/very dissatisfied, why?

	Number	%
Hasn't worked the whole time I have lived here/ not	2	100.0
Total	2	100.0
Not applicable	64	
	66	

Table 39 How satisfied/dissatisfied are you with the refund you receive from PowerNI when you sell back electricity to the grid?

	Number	%
Very Satisfied	1	10.0
Satisfied	4	40.0
Neither	2	20.0
Don't sell back	3	30.0
Total	10	100.0
Not applicable	56	
	66	

Table 40 What was your heating system previous to this one?

	Number	%
Open fire	24	36.4
Economy 7	12	18.2
Same	9	13.6
Oil heating	5	7.6
Closed coal fire	4	6.1
Wood pellet boiler	1	1.5
Gas	1	1.5
Don't know	10	15.2
Total	**66**	**100.0**

Table 41 Overall how does your current system compare to your old system?

	Number	%
Much better	25	53.2
Better	8	17.0
Neither	5	10.6
Worse	5	10.6
Much worse	4	8.5
Total	47	100.0
Not applicable	19	
	66	

Table 42 If worse/much worse why?

	Number	%
Hard to understand and doesn't retain heat	4	44.4
Too costly	3	33.3
Not working/keeps breaking down	2	22.2
Total	9	100.0
Not applicable	57	
	66	

Table 43 Are there any other comments you would like to make regarding your heating system?

	Number	%
No comment	32	48.5
Happy with system	14	21.0
Not working/not working properly	5	7.5
System is cheaper	4	6.0
House not insulated properly therefore heat is getting out	1	1.5
Doesn't retain the heat	1	1.5
System is very temperamental	1	1.5
Don't like the system	1	1.5
Worried chimney might be in the wrong position	1	1.5
Still getting used to the system	1	1.5
Price of wood pellets have gone up therefore it's hard to	1	1.5
Need to lower ceiling to keep in heat	1	1.5
Quicker and more efficient	1	1.5
Don't know how it works	1	1.5
House and water now extremely warm	1	1.5
Total	**66**	**100.0**