



MINISTRY OF  
SOCIAL DEVELOPMENT  
*Te Manatū Whakahiato Ora*



## **Household Energy Affordability: Qualitative Research Report**

Prepared by

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**Disclaimer**

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## 1.0 Executive summary

This report presents findings from a series of interviews with 121 social service providers (referred to as stakeholders) and individuals from low income households around New Zealand (respondents). Interviews were carried out during the winter of 2009 in South Auckland, Gisborne, New Plymouth, Christchurch, Greymouth and Hokitika, and Southland. The report aims to:

- explore how low income households use energy, and the factors that contribute to decisions about energy use
- contribute to development of a national survey by identifying risk factors for energy hardship in New Zealand households.

### ***Energy use in low income households***

This section describes how respondents use energy in their homes, and some factors that influence decisions about energy use.

#### **Space heating appliances in low income households**

Most low income households interviewed were unable to afford energy efficient space heating appliances, such as heat pumps and solid fuel burners, without financial assistance. Less efficient heating sources, such as small portable electric heaters and portable unflued gas heaters were common in a large number of households.

Where present, heat pumps were almost universally considered an effective and efficient space heating appliance. However, they were often only found in low income households that had been the recipients of an energy efficiency or clean air retrofit package. Solid fuel burners were also noted by many households as a relatively cheap form of space heating.

Many low income households interviewed incorrectly believe that unflued gas heaters are the cheapest form of space heating, when they are actually one of the most expensive ways to heat a house. Most households using unflued gas heaters were also unaware of the negative health effects associated with using these appliances without proper ventilation.

Some low income households were unable to heat their home at all, due to the lack of a space heating appliance and/or an inability to afford the energy costs associated with space heating. Some low income households had invested in portable electric space heating appliances and found that they cost so much to run that they stopped using them.

Increased awareness of the relative energy efficiency and running costs of space heating appliances could enable low income households to make better informed decisions about which space heating appliance to use.

#### **How low income households are heating their homes**

The most common heating pattern among households interviewed for this study is to heat a section of the house (typically the living area) and leave the remainder of the house unheated. Some sole parents reported that they heat their home only during the

period in which their children are at home, and allow it to get cold while their children are at school.

Many respondents that are heating their homes are only maintaining very low temperatures. Respondents living in unheated/under-heated homes often wear additional layers of clothing, sit under blankets, and/or stay in bed for longer periods of time to stay warm. Some low income households appear to consider these as viable alternatives to space heating.

### **How low income households are reducing energy use**

When attempting to reduce energy expenditure many households reported that they will reduce space heating before other forms of household energy use. Some households considered other alternatives, such as switching all appliances off at the wall and turning lights off, to be too time consuming and to have little impact on energy costs compared with going without space heating. Some of these households appeared to view non-space heating energy services as essentially fixed, with little opportunity to economise.

### **How low income households are paying for energy**

Variable monthly energy bills based on energy use can be difficult for some low income households to manage. Poor budgeting skills make it difficult for low income households to set aside money for monthly expenses, particularly when the amount can vary significantly each month. 'Spikes' in energy bills associated with extra energy use during winter or as a correction to a previously under-estimated energy bill can also make it difficult for low income households to plan for energy costs. Stakeholders noted that this can lead to some low income households reducing energy use significantly following these large energy bills in order to attempt to avoid the issue recurring.

A number of low income households we interviewed have switched to either pay a set 'smoothed' rate for their energy services, or to pay via prepayment meters installed in their homes. These payment methods avoid many of the problems associated with variable monthly energy bills.

Several households noted that prepayment meters able to provide energy use data can also encourage energy conservation by making the cost of various energy services explicit. There was concern, however, that this could also lead to low income households reducing their energy services to insufficient levels in order to stay within a set budget. Stakeholders also reported that the need to credit the meters before using the energy is likely to result in some low income households going without energy services.

Low income households that fall behind on energy bills can struggle to catch up due to the loss of 'prompt payment discounts' and fees associated with reminder notices. Some stakeholders questioned the purpose of these additional costs, noting that they only seem to make it more difficult for already struggling low income households.

Stakeholders report that a small number of low income households are falsely claiming a medical need for electricity in order to avoid disconnection for non-payment. Some low income households are accruing serious debt to energy providers.

## ***Risk factors associated with energy hardship***

This section explores factors that appear to be associated with energy hardship, and will contribute to a national survey exploring the prevalence of these issues.

### **Income and budgeting**

Low income is considered a key risk factor for energy hardship (inability to afford sufficient energy services). However, stakeholders noted that the problem is often poor financial literacy resulting in low income households being unable to effectively budget for expenses such as energy bills. Budget advice appears to be an effective intervention in addressing energy hardship.

Low income households are more likely to include population groups that spend longer at home on average than other groups, increasing demand for energy services. For example, older people, beneficiaries, people with disabilities and young children.

Stakeholders reported increasing numbers of low income workers requesting assistance with paying for energy bills.

### **Energy costs**

Several respondents noted that increases in energy costs over the past few years have made it increasingly difficult for them to maintain sufficient energy services. Many respondents also noted that the cost of electricity varies significantly around New Zealand, with more remote areas such as the east coast of the North Island and west coast of the South Island reporting particularly high prices. For example, stakeholders on the West Coast reported that reliance on electricity for space and water heating, as opposed to solid energy sources, would put low income households at significant risk of energy hardship.

Similar to the issue of needing to credit prepayment meters prior to using energy, some stakeholders noted that solid energy required payment 'up front' and that some households would likely go without space heating when unable to afford wood and/or coal.

### **Other expenses**

Some respondents identified that increases in non-energy household costs was putting increasing pressure on their ability to afford to maintain sufficient energy services. Unexpected expenses such as costs associated with healthcare, a death in the family or car repairs can also make it difficult for low-income households to afford energy bills.

Stakeholders noted that some households face 'extra costs' such as regular healthcare costs, high transport costs, additional energy to run rural water and septic systems, and family staying. These households were thought to have an increased risk of energy hardship.

### **The house**

Houses located in the colder regions of New Zealand such as the lower South Island require more energy to heat, indicating colder regions of New Zealand may have increased rates of energy hardship. Several households interviewed were living in very damp homes, which makes space heating more difficult and has been linked to a

number of negative health outcomes. Location, condition and design of the house, and space heating patterns all appear to contribute to the likelihood of houses becoming cold and damp.

Houses in poor condition require more energy to heat, increasing risk of energy hardship. Some low income households that own their own home are struggling to afford to maintain them. People living in substandard housing (such as garages and caravans) are also thought to have an increased risk of energy hardship due to the relatively poor ability of these shelters to retain heat.

Private landlords were identified as a significant barrier to accessing EECA ENERGYWISE™ subsidised insulation and efficient heating appliances. A large proportion of respondents in private rental accommodation noted that their landlord is not prepared to invest any money in the property.

### **Household structure and population groups**

Interviews indicate that multigenerational households where the majority of adults are in paid employment appear to be less likely to be in energy hardship due to the ability to take advantage of economies of scale on expenses such as household energy use. However, when the majority of adults are not in paid employment multigenerational households appear to increase the risk of energy hardship.

Older people were identified by many stakeholders as significantly more at risk of energy hardship due to low average income, often high healthcare and transport costs, and resistance to ask for or accept assistance.

Refugees and recent migrants, people with disabilities and single person households were also identified as facing an increased risk of energy hardship.

### **Awareness and knowledge**

Stakeholders noted that some households are unaware of the importance of maintaining a warm, dry indoor environment. As noted above, some households appear to consider wearing additional layers of clothing/blankets in a cold house as a viable alternative to space heating. Many households are heating their homes, but to very low temperatures, and still adopt these coping strategies.

Respondents that had not lived in an insulated house appeared to be less able to appreciate the economic and comfort benefits of insulation, and less interested in insulating their home.

## ***Discussion***

Decisions about household energy use appear to be influenced by a wide variety of factors. Many households appeared to lack awareness of the importance of maintaining a warm, dry home. As a result some households are choosing to not heat or under-heat their home in order to reduce energy costs.

The fieldwork identified a large number of factors that appeared to increase the risk of energy hardship. The prevalence of these risk factors will be measured by a national survey scheduled to be carried out during the winter of 2010. A large number of low

income households in energy hardship exhibit multiple risk factors. This indicates that interventions addressing only one issue may fail to fully address other issues contributing to the household's inability to afford sufficient energy services.

## **2.0 Introduction**

This report summarises findings from the qualitative research component of the Household Energy Affordability (HEA) project.

### **2.1 Background**

Cold houses are known to be associated with significant and expensive health costs. Household energy costs represent a substantial proportion of total household expenditure, and for many low income New Zealanders, particularly those in colder regions, paying household energy bills means going without other essentials, or adopting economising behaviours in order to reduce household energy expenditure. The negative effects of rising energy prices are further compounded by the poor thermal performance of the New Zealand housing stock.

The goal of the HEA project is to explore the issue of energy affordability in New Zealand households. This project is partially funded by the Cross Departmental Research Pool, and is being co-led by the Ministry of Social Development (MSD) and the Energy Efficiency and Conservation Authority (EECA).

The research objectives of the HEA project are to:

1. develop an appropriate measurement of household energy affordability in the context of household energy use for New Zealand which provides a framework to understand the problem and explore solutions
2. understand how people think about heating, household energy use and affordability, and how they make choices about expenditure on energy
3. establish estimates of the extent of energy affordability problems in New Zealand and define which groups are most at risk
4. support the development of policy and other responses to ensure improved household energy affordability
5. establish ongoing interagency collaboration in the field of household energy affordability and energy efficiency.

This report is the third of four planned reports that will respond to the objectives above. A literature review (MSD & EECA, 2010), and a working paper report proposing a measure of household energy affordability (MSD & EECA, 2010b) have been completed. The final report, scheduled for publication in 2011, will summarise findings from a quantitative survey due to be carried out during winter 2010.

### **2.2 Objectives of the qualitative research**

The HEA project will use both quantitative and qualitative research methods to explore household energy affordability in New Zealand. The specific objectives of the qualitative research component are:

- to inform the second HEA project objective (to understand how people think about heating, household energy use and affordability, and how they make choices about expenditure on energy)

- to inform development of a national quantitative survey aimed at exploring issues related to household energy affordability in New Zealand.

In order to address these two objectives interviews were carried out with both low income households that may be struggling to pay household energy costs, and the agencies that provide services and supports to them. This second group is referred to throughout this document as 'stakeholders', and includes Work and Income, advocacy organisations, public health professionals, local government, church based groups and social housing providers. Representatives from low income households are referred to as 'respondents' throughout this report.

The HEA project team members developed a set of information needs intended to elicit the information required to meet the objectives of the research:

- Stakeholder interview information needs:
  - Specific population groups at risk of energy hardship.
  - Factors associated with energy hardship.
  - How households get into energy hardship.
  - Examples of the problems households in energy hardship have.
  - The extent of changes in the local energy / energy efficiency sector, and how these changes have influenced behaviour within households in energy hardship.
  - Perceptions of the effectiveness of available interventions.
- Respondent information needs:
  - How households use energy (particularly for space heating).
  - Reasons / assumptions behind how households use energy.
  - Tradeoffs people make when making decisions about energy expenditure.
  - Coping behaviours households in energy hardship adopt.
  - The assistance that households in energy hardship feel they need.

### ***2.3 Structure of the report***

Following this section, key terms will be defined (2.4), and the methodology for the qualitative research is summarised (3.0).

Section 4.0 will explore how a sample of low income households are using energy in their homes, and attempt to identify some of the reasons behind these energy use patterns. Section 5.0 summarises factors associated with energy hardship, and is intended to inform development of a national survey during 2010.

Section 6.0 will discuss key findings from the research and identify potential policy implications.

The findings will incorporate case studies of low income households to provide detailed examples of the issues identified by the research. Names have been changed in order to ensure respondents are unable to be identified. Some case studies represent composites of two or three households, in order to further ensure confidentiality for respondents. However, all details in case studies are based on actual households interviewed for this research.

## 2.4 Key terms

### Energy Services

Space and water heating, entertainment, and the ability to store and prepare food are examples of energy services. This term acknowledges that households are not interested in purchasing energy per se; they value the access they have to services that energy provides.

### Household Energy Affordability

***Household Energy Affordability is***  
*the relative affordability of household access to energy services*

The term ‘relative’ acknowledges that some households can afford more energy services than others, and that household energy affordability relates to the well-being of all households and not just to those in energy hardship. This aligns well with existing government policy which is interested in improving energy affordability across the board, not just among those in energy hardship.

### Energy Hardship

***Energy hardship is***  
*the inability to afford access to sufficient energy services*

If household energy affordability is on a continuum then ‘energy hardship’ describes households at the end of the affordability continuum who are least able to afford energy services.

This definition acknowledges that household energy affordability should be assessed based on a standard of sufficient energy services, and not actual expenditure on energy. This is important as some low income households could reduce expenditure on energy by accessing insufficient energy services. If actual expenditure were used to assess energy hardship, these households would appear to be in a better situation than they are.

### Sufficient Energy Services

The definition of energy hardship above uses the term sufficient energy services. In practise it is difficult to define and measure ‘sufficient’ energy use. The HEA Measurement Paper (MSD & EECA, 2010b) outlines an approach that uses indicators of clearly *insufficient* energy use to help assess the sufficiency of energy services.

## 3.0 Methodology

This report contributes to the wider HEA research project which combines both quantitative and qualitative data methodologies. The aim of this section of the research was to explore factors relevant to decisions about household energy use. Qualitative interviews were selected as the most appropriate methodology as they enable in-depth exploration of a topic, and provide opportunities for probing and following up on topics that may not have been considered in the initial interview guide.

### Interviews

Face to face interviews were carried out between April and July 2009 in six sites around New Zealand. Sites were selected based on climate, access to 'alternative energy sources', and to ensure a variety of population groups were included in the research:

- Auckland – large Pacific population, relatively warm climate.
- Christchurch – significant history of energy efficiency interventions in the region, recent legislation banning solid fuel burners across most of the region.
- Gisborne – large Maori population, remote rural households further up the coast.
- Invercargill – access to local solid fuel (coal), relatively cold climate.
- New Plymouth – access to local source of natural gas.
- West Coast – access to local solid fuel (coal and wood), damp climate, remote rural households.

Interview respondents were selected to ensure experiences and opinions were gathered from low to middle income New Zealanders, not to ensure a nationally representative sample. As such findings are indicative of the experiences of New Zealand households but not necessarily generalisable. Where a finding is based on comments from only one or two respondents this is noted in the text.

Each site was visited twice, and interviews were carried out with two groups of respondents. The initial visit (April-May 2009) involved interviews with stakeholders who were likely to work with households living in energy hardship – such as Work and Income, advocacy organisations, public health professionals, local government, church based groups and social housing providers. Following this fieldwork, stakeholders were asked to approach low to middle income households they have had contact with in order to source respondents for the second set of interviews (June-July 2009). Stakeholders were asked to identify households that were currently struggling or previously struggled with household energy costs, or who were at risk of energy hardship.

Interviews were a mix of individual and small group interviews, at the discretion of respondents. Forty-four interviews were carried out with stakeholders, and included 67 individuals. Forty-six interviews were carried out with households, and included 54 individuals. In total 90 interviews were carried out, and included 121 individuals.

Each interview was carried out by two researchers. A Maori researcher was contracted to assist with interviews in Gisborne, and a Pacific researcher was contracted to assist with interviews in Auckland.

The interviews were semi-structured; meaning that they were treated more as a focused conversation than a series of questions and answers. Interview guides are included in Appendix A. Audio recordings were made of almost all interviews, however one respondent preferred not to be recorded and extensive written notes were taken during the interview instead.

## **Analysis**

Initial data analysis involved coding transcribed interviews and interview notes to identify themes, from which higher level categories of themes were derived. Regional summary reports were produced based on this analysis of the data, and attempted to summarise issues identified by stakeholders and respondents in each region. Stakeholders were then asked to provide comment on the extent to which the regional summary reflected their view of issues related to energy affordability. The summaries and interview notes for each region were amended based on this feedback.

The regional reports, as well as original interview transcriptions and notes, were used to write this report. Themes and categories were placed within a framework based on the objectives of this research.

## 4.0 Energy use in low income households

This section describes how low income households interviewed for this research are using energy in their home, with an emphasis on space heating energy use. The findings are based on interviews with stakeholders that assist low income households, and with individuals from low income households themselves.

Initially, this section explores the use of specific space heating appliances (4.1), before discussing space heating patterns (4.2). Non-heating energy use is briefly discussed in section 4.3, before a discussion of how low income households are paying their energy costs and how this can influence decisions about household energy use (4.4).

### 4.1 *Space heating appliances*

#### **Summary**

- Interviews with stakeholders and low income households indicates that many low income households are unable to afford energy efficient space heating appliances, such as heat pumps and solid fuel burners.
- In addition to this, the high level of transiency of some low income households means that they typically invest in portable electric heaters and unflued gas heaters - which are relatively more expensive to run.
- Several respondents had purchased portable electric heaters but were not using them as they cost significantly more to run than was expected / affordable.
- Some households incorrectly believe unflued gas heaters are the cheapest form of space heating.
- Respondents using unflued gas heaters were largely unaware of the negative health outcomes associated with using these appliances without proper ventilation.
- Solid fuel burners provide a cheap heating option for households able to access and use solid fuel, particularly for households able to access free wood/coal.
- The Environment Canterbury Natural Resources Regional Plan (Chapter 3 – Clean Air Plan), banning the use of most solid fuel burners in Christchurch, could result in households paying more to heat their home as a result of switching from solid fuel sources to relatively more expensive electricity - in some cases households could be left without a space heating appliance.
- Among respondents heat pumps were almost universally considered an effective and efficient space heating appliance, however they were typically only found in low income households that had been the recipients of an energy efficiency or clean air retrofit package.
- Some low income households are unable to afford to purchase or run space heating appliances.
- Increased awareness of the relative energy efficiency and running costs of space heating appliances could enable low income households to make better informed decisions about which space heating appliance to use.

Table one summarises the main heating source used by each household interviewed. Many households were using multiple space heating appliances. However, all but one household was able to determine which appliance was their main heating source. The main heating source in a house was typically located in the living area of the house, was the most frequently used, and was often fixed in place. Other heating appliances were typically used less frequently, often to heat bedrooms, and were almost always portable.

**Table 1: Main space heating appliance in respondent households**

	Portable electric heater	Unflued gas heater	Solid fuel burner	Heat pump	Other	No heater	Total
Auckland	2	2	1	1	0	2	8
Christchurch	4	0	3	4	0	0	10**
Gisborne	1	3	4	1	1	0	10
Invercargill	0	0	3	4	0	0	7
New Plymouth	2	4	0	0	0	0	6
West Coast	0	1	3	0	0	1	5
Total*	9 (19%)	10 (21%)	14 (30%)	10 (21%)	1 (2%)	3 (6%)	46 (99%)*

\*: Proportions do not sum to 100% due to rounding.

\*\* : One household was unable to determine which of two heating appliances their main heating source was, as they used both equally. As a result table one includes 47 'main space heating appliances' from a total of 46 household interviews.

For more information about the running costs of various space heating appliances see Appendix B1.

### **Portable electric heaters**

'Portable electric heater' is a broad category of space heating appliances, including oil column heaters, fan heaters and radiant bar heaters. These appliances were relatively common, with around one in five interviewed households using them as a main heating source. Many more households used them as a secondary heating source, typically to heat bedrooms.

Portable electric heaters were seen as relatively cheap to purchase, and some households felt they were an affordable way to heat their home. However, other respondents noted that they were expensive to run. This could indicate significant differences in running costs between various portable electric heaters, or reflect differences in how households choose to heat their homes. In some cases households had purchased a portable electric heater, but following large electricity bills had stopped using the appliance.

Others noted that portable electric fan heaters take a long time to heat a room to a comfortable temperature, and that when switched off the room cools rapidly.

***Case study one: 'Mike' is a single man living alone in private rental accommodation, receiving a Sickness Benefit, Accommodation Supplement and Disability Allowance.***

Mike has significant health costs, which he says his Disability Allowance does not always cover. He frequently finds it difficult to afford his household bills as he has no flatmates to share expenses with.

During the winter of 2008 Mike purchased a small portable electric fan heater to heat his house. After using this for a month Mike received a very large power bill, which he attributed to the heater. Since the bill, Mike has not used the heater, resulting in his house being unheated for the winters of 2008 and 2009. It took him two months to pay off this energy bill, which meant he missed out on early payment discounts and reduced expenditure on food and health costs to afford the repayments.

In order to stay warm Mike spends most of the day in his bed, which he had moved into the lounge. Mike would like a solid fuel burner, as he had one in his last flat and was able to keep his house warm, but his landlord won't pay to install one. Mike is considering getting a Work and Income recoverable grant to purchase an unflued gas heater as he has been told that they are the cheapest form of space heating.

**Unflued gas heaters**

Unflued gas heaters (UGHs) can be portable or fixed in place. Almost all UGHs used by respondents were portable. UGHs were the main space heating appliances for around one in five interviewed households. Some households used an UGH as a secondary space heating appliance, and a few households reported that they would like to use an UGH as their main heating source but were unable to afford to purchase one. Another household owned an UGH but had stopped using it after being told of the negative health effects of using these appliances without proper ventilation.<sup>1</sup>

While more expensive to purchase than many portable electric heaters, portable UGHs are considerably cheaper than more energy efficient space heating appliances such as heat pumps and efficient solid fuel burners. The relatively low purchase price for UGHs makes them an attractive option for many low income households.

Several respondents using an UGH incorrectly believed they were using the cheapest form of space heating available. Some stakeholders also believed that UGH were a cheap space heating option, and recommended these to clients struggling with paying their energy costs. This perception was widespread, and could be linked to the fact that portable UGHs run on bottled gas; effectively breaking up the cost of the space heating

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<sup>1</sup> UGHs are banned in some countries due to the negative health consequences associated with their use. UGHs have been shown to be associated with certain respiratory conditions including asthma in previously sensitized individuals. For more information see the HEA project literature review (MSD & EECA, 2010).

into 'chunks', which may appear smaller than paying a monthly energy bill. This could also appeal to households that struggle with budgeting. Many stakeholders reported that households with poor financial skills can sometimes struggle to put aside money each week to pay for monthly expenses such as energy bills. Filling a gas bottle involves smaller instalments that could be easier to manage for some low income households. One household used the gas bottles as a budgeting tool, noting that they filled the bottle once a fortnight and if it ran out early they went without heating.

Refilling UGH bottles can be difficult for some households. One respondent didn't own a car, and was reliant on friends taking them to refill their gas bottle. At the time of the interview they had been using a portable electric fan heater for two weeks as they had been unable to arrange transport to fill their gas bottle.

While some households using an UGH were aware of the health effects associated with using the appliance without proper ventilation, most were not. One respondent noted that they had recently purchased an UGH to keep their house warm because a family member living with them had asthma. Another household believed that their UGH dried out the air in their home. Many stakeholders said that they discourage the use of UGHs, but a small number of stakeholders reported that they advise low income families struggling with energy costs to invest in an UGH. This indicates a potential need for increased awareness of relative running costs and negative health consequences associated with UGHs for both households and social service providers.

### **Enclosed solid fuel burners**

Solid fuel burners were the most common main heating source in the households interviewed for this study (30% of households). No respondents were using open fires, so this section refers to enclosed burners that use coal, wood and/or wood pellets as fuel. These appliances were particularly common in the South Island and in rural households on the East Coast of the North Island. Note that while four of 10 households in Christchurch used a solid fuel burner as their main heating source at the time of the interviews, two of these will have to change as legislation banning the use of most solid fuel burners will be enforced in Christchurch from April 2010.<sup>2</sup> The other two households had already transitioned to pellet burners that meet regulations, but both indicated they were disappointed with their effectiveness.

Across the country solid fuel burners were typically described as a very cheap space heating option, particularly for those who had access to free fuel. Some households in Invercargill and the West Coast have access to relatively cheap coal from local mines; however even in Auckland where one household purchased wood from the supermarket it was considered the cheapest space heating option. Solid fuel burners with a wetback were noted as particularly efficient as they provide both space and water heating.

Some low income households reported supplementing their purchased solid fuel with gathered wood, and stakeholders reported that they are aware of households that rely solely on gathered solid fuel.

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<sup>2</sup> For further information on which heating appliances are being banned in the Canterbury region see: <http://www.ecan.govt.nz/advice/your-home/home-heating/home-heating-rules-canterbury/Pages/home-heating-for-christchurch.aspx>

Stakeholders noted that some population groups are likely to be unable to access or use solid fuel for space heating, forcing them to rely on relatively more expensive electricity or gas. Older people and people with physical disabilities were thought to be likely to struggle with accessing and moving heavy wood and coal.

Some households noted that they would like a solid fuel burner, but that they couldn't afford to purchase one. Most respondents that wanted a solid fuel burner noted that access to cheaper space heating was their reason. However, two respondents noted that the fire in solid fuel burners is aesthetically pleasing, and some respondents also noted that they don't like being solely reliant on electricity for space heating. Solid fuel burners were typically 'already there' when respondents moved into private rental accommodation.

***Case study two: 'Dan' is a single parent living in private rental accommodation, raising two young children, receiving a Domestic Purposes Benefit and Accommodation Supplement.***

Six months ago Dan and his children were living in a warm home in the South Island, with a large solid fuel burner and a wetback. When Dan lost his part-time job he decided to move to a smaller house in order to reduce accommodation costs.

The new house had no solid fuel burner, so they used electricity for space and water heating. It took 2 months for their first energy bill to arrive at their new home, and they were shocked to note that it was \$150.00 per month more than in their previous house. Dan was unable to afford the increased energy bills, and immediately began looking for another house.

They have since moved into a house with a solid fuel burner and wetback, and are now able to afford to maintain a warm home. Dan is still paying off the overdue power bills and costs associated with moving house twice. He noted that he would never consider renting a house without a solid fuel burner again.

### **Heat pumps**

Heat pumps were relatively rare in the households we interviewed, except for those in Christchurch and Invercargill. There have been extensive retrofit and clean heating interventions in these two areas, and some of these households had their heat pumps installed as part of one of these initiatives. Quite a few households reported that they would like a heat pump but were unable to afford one. It is clear that without assistance low income households are unlikely to be able to afford to install a heat pump.

Typically households that used a heat pump were very satisfied with the appliance. Several elderly people noted that they found them easy to use, but they just left the heat pump running continuously and had never used the timer. Two households reported that they believed the warm air blown out of heat pumps can cause people to become ill. One of these families had a heat pump installed but didn't use it often, while the other had no heating source. Some households were unsure whether they would use a heat pump if given the option, as they had the impression that they were particularly expensive to run.

### **Unheated houses**

Three households interviewed didn't own a space heating appliance. One household owned a space heating appliance but very rarely used it as they said their house was so draughty that it was a 'waste of time' heating it.

Two of the households without a space heating appliance said it was because they couldn't afford to purchase one. The third household had purchased a portable electric heater the previous winter but stopped using it as their power bills were unaffordable.

Stakeholders reported that they were aware of multiple cases of households using ovens as a space heating appliance. Two households reported occasionally using their ovens to heat their homes. Another respondent reported that although they now have an UGH to heat their home, the previous winter they had no space heating appliance and instead used the oven to heat their home on the coldest days.

#### ***Case study three: 'Sita' lives in an extended family household with her husband, two children, parents and grandparent.***

Of the five working age adults living in the house, only Sita's husband and father are in employment. The family used to live in a Housing New Zealand Corporation (HNZC) house, but purchased a three bedroom house about 12 months ago. They have no space heating appliance in the house, and the family typically sit under blankets to stay warm.

Sita's mother believes that the air from electric and gas heaters can make people sick, and because of this the family will only use a solid fuel burner. Sita was unable to elaborate on this point beyond noting that her mother had been told by someone that these heaters were unhealthy, particularly for children.

Their previous HNZC rental property had a solid fuel burner which kept their house warm. The family are unable to afford to install a solid fuel burner themselves, and struggle to maintain the house. Sita notes that if they were still in an HNZC house they would have the house taken care of for them, but because her parents saved and purchased a house they were now in a worse situation.

Sita's children are frequently sick, particularly her youngest child who had developed asthma since living in the current house, and frequently requires trips to the doctor and hospital.

### **Key issues / implications**

The low income households interviewed appear to have few options when it comes to heating their home. Energy efficient heating appliances (heat pumps, efficient solid fuel burners) are typically expensive to purchase and install. Portable electric heaters and UGHs are cheaper to purchase, and were common in households interviewed. In addition to an inability to afford energy efficient space heating appliances, stakeholders noted that the high level of transiency in some low income households living in rental accommodation means that portable heating appliances are a more attractive

investment. UGHs and some portable electric heaters can be expensive to run, resulting in some households spending more to achieve a given temperature than those who are able to afford more efficient space heating appliances.

Work and Income are able to provide a recoverable grant to low income households which could be used to purchase a space heating appliance. However, the maximum amount of these grants would be insufficient to cover heat pumps or other energy efficient heating appliances.

EECA provide ENERGYWISE™ grants (re-branded in 2009 as the New Zealand Insulation Fund – Warm Up New Zealand: Heat Smart Programme) which can cover up to 60% of the cost of purchasing and installing energy efficient clean heating appliances for homeowners and landlords. These grants may enable low income households to afford energy efficient heating options.

Lack of awareness of the relative energy efficiency and running costs of various space heating appliances appears to be a significant problem. Several of the households interviewed believe that UGHs are the cheapest form of space heating, when it is actually one of the most expensive. Other households were reluctant to install heat pumps as they had been told that they are expensive to run.

The running cost of portable electric heaters appears to vary significantly. Increased awareness of the energy efficiency and running costs for portable electric heaters could enable low income households to make better decisions about which appliance they purchase. This could help reduce the incidence of low income households purchasing a portable electric heater which they are then unable to afford to use.

The lack of awareness of the potential health implications of using UGHs could have serious health consequences for some households. In addition to the negative quality of life implications, the added cost of healthcare could put additional strain on low income households' budgets.

## **4.2 Heating patterns**

### **Summary**

- Among respondents, the most common heating pattern was to heat a section of the house (typically the living area) and leave the remainder of the house unheated.
- Very few households heat the entire house, and those that do are often doing so for health reasons.
- Maintaining a warm home appears to be a priority for many parents, some of whom will reduce expenditure in other areas (food, healthcare, clothing), while others will accrue debt in order to keep their children warm.
- Some respondents will heat their home only during periods in which their children are there, and allow the house to go cold while their children are at school.
- For many respondents space heating is the first thing that they will go without when attempting to reduce energy expenditure.

- Some households that are heating their homes are only doing so to low temperatures.
- Many respondents living in unheated/under-heated homes wear additional layers of clothing, sit under blankets, stay in bed for longer periods of time, or spend the day in public libraries or shopping malls to stay warm.

This section describes heating patterns common in the low income households interviewed for this study. Households struggling to afford all essential expenses often respond by reducing energy services, typically space heating. Some stakeholders noted that when attempting to reduce energy costs almost all households will reduce space heating before other energy services. One stakeholder thought that this was because a warm house is an obvious source of energy use, and the absence of space heating (a cold house) appears to be a significant change in energy use.

### **Heating only one room / part of the house**

The most common heating pattern among households we interviewed was to ‘close the doors’ and heat one or two rooms, and avoid using the unheated section of the house. This doesn’t appear to be solely related to energy affordability, as stakeholders (not struggling financially) reported that they adopt this heating pattern in their own homes. Some reported that they adopted this heating pattern as if they left doors open none of their house would be heated sufficiently, so by closing the doors they ensured that at least part of their house was ‘warm enough’.

All respondents adopting this heating practice were heating the living area of the house. Some households primarily heated their living area, but used small heaters to ‘take the chill off bedrooms’ just prior to going to sleep. In some households all people sleep in the same bedroom in order to try to keep that space warm, while other households reported that they would stay warm by all sleeping in the living area of their house for the winter, barely using the bedrooms at all.

Some respondents noted that they would like to be able to heat other parts of their house, but were unable to do so as their sole heating appliance was fixed in place.

### **Heating the entire house**

Stakeholders noted that some households are required to keep their whole house very warm for health reasons - typically respiratory or cardio-vascular conditions. One older respondent heated their whole house as a preventative health measure, as they had been advised by their doctor that some ‘age related’ health conditions were related to living in a cold house.

Two large multigenerational households noted that they were able to afford to heat the entire house as the large number of occupants helped spread the cost of heating. It should be noted that in both these houses a significant number of occupants were in paid employment. A third multigenerational household, with only two people in paid employment, was unable to afford to heat their home at all.

Some respondents noted that they consider ‘staying warm’ a priority, and accrue debt to their energy provider each winter which they pay off during the warmer part of the year.

### **Heating the house when children are at home**

Respondents with children appear to prioritise space heating to a greater degree than those without children. Many of these households reported heating their homes despite being unable to afford the energy costs. Some households would reduce expenditure on other things, such as food, healthcare and clothes. Other households noted that they accrued debt to power companies, Work and Income (through recoverable grants), and/or took out personal loans.

Another heating pattern common in households with school aged children was for the house to be heated while the children are at home, and unheated while they are at school. Some parents adopting this heating pattern reported that they would wrap up in blankets or extra coats during the day, while others spent the day in public libraries and shopping malls in order to stay warm.

### **Under-heating**

Some low income households don't heat their homes at all. In addition, some households we visited were heating their homes, but to very low temperatures. One respondent, who said they kept their living area warm all day, pointed out a thermometer on the wall which indicated the temperature was 12°C at the time of the interview (late morning).<sup>3</sup>

Some respondents living alone indicated that it wasn't worth heating the room 'just for me', and would instead sit under blankets or remain in bed for longer periods of time during winter. Stakeholders reported that this was particularly common among older people.

Households that don't maintain a warm house often adopt various coping mechanisms, such as wearing additional clothes and/or blankets, staying in bed for longer periods of time or carrying hot water bottles. Effectively these behaviours are attempts to warm individuals within a cold home, instead of warming the indoor space.

These behaviours were seen by most people adopting them, and by some stakeholders, as acceptable alternatives to heating a home. In addition to the negative health consequences of living in a cold home, adopting coping mechanisms such as staying in bed for longer periods of time is likely to negatively impact the quality of life of many people. Some stakeholders thought this 'rug up ethic' was an issue for more than just low income households.

### **Exposure time**

Certain population groups spend more time at home on average than other population groups. Increased time spent in the home results in a need for increased expenditure on energy services. Stakeholders identified the following groups as having an increased need for space heating energy due to more time spent in their homes:

- older people

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<sup>3</sup> International research, including the World Health Organisation, indicates that indoor temperatures should be kept above 18°C, and that temperatures below 16°C are associated with increased risk of certain respiratory and cardiovascular conditions. For more information see the HEA Literature Review (MSD, EECA, 2010).

- beneficiaries
- people with disabilities
- families with young children

A significant proportion of people in these groups are also likely to be living on a low income.

***Case study four: ‘Kate’ is a sole parent living in private rental accommodation with a primary school aged child, receiving Domestic Purposes Benefit and Accommodation Supplement.***

During winter, Kate gets up early every morning to turn on the unflued gas heater in the living area of her house, to ensure it is warm for her son while he gets ready for school. Once he has gone to school Kate turns off the heating, and wraps up in a blanket to stay warm for the day. Kate notes that if she has to do anything around the house her hands often get painfully cold while they’re out from under the blankets.

Late afternoon Kate turns the heater back on in order to ensure the house is warm for her son when he comes home from school. The heater remains on until early evening, and the living area stays relatively warm until they go to bed.

Until attending budget advice seminars six months ago on the advice of Work and Income, Kate struggled to manage her finances, and accrued significant debt with several organisations, including her power company. Repaying this debt to the power company makes it difficult for Kate to afford energy bills, which is why she adopts this heating pattern.

At the time of the interview Kate had a nasty sounding cold, which had been there ‘on and off’ for around two months. Kate felt that her cold was related to spending so much time in a cold, damp house.

**Key issues / implications**

A number of respondents were either not heating their home, or heating their home to very low levels. This appears to be because of an inability to afford sufficient energy services and/or a lack of awareness of the importance of living in a warm, dry environment. Living in a cold, damp home is associated with negative quality of life and health outcomes.

It was not unusual for respondents to consider wearing extra clothing or staying in bed as a viable alternative to heating their home. This could indicate that, as a potential policy lever, education about maintaining a healthy indoor environment is at least as important as changes to income or energy prices.

Some stakeholders noted that low income households are often ‘used to’ living in cold damp homes, and don’t actively seek assistance to enable them to maintain a healthy indoor environment. This may indicate that energy efficiency and clean heating retrofit interventions need to be more proactive in order to reach some low income households.

### **4.3 Other energy use**

#### **Summary**

- Some low income households reported reducing household energy services in an attempt to cope with increasing energy costs.
- Many households attempting to reduce energy costs seem to reduce space heating energy services before other household energy services.
- Some of these households appear to view non-space heating energy services as essentially fixed, with little opportunity to economise.
- However, other households report reducing a wide variety of energy services, including lighting, cooking, and hot water use for showering and washing clothes.
- Some households reported high hot water temperatures, and most were unaware of the ability to lower the temperature of their hot water system.

This section briefly outlines issues related to non-heating energy use raised during interviews. Focusing on behaviours related to reducing non-heating energy use / expenditure.

#### **Water heating**

Water heating in respondent households was typically electricity or gas, although some households had wetback systems attached to solid fuel space heating appliances. Wetbacks were prevalent on the West Coast of the South Island and were considered by all respondents who had one as an effective way of reducing energy use / expenditure.

Some households reported limits on shower length during winter in order to attempt to reduce energy use. Most households reported that they only ever use cold water for washing clothing as hot washes are too expensive. However, several households appeared to consider water heating costs essentially fixed, with few options to reduce energy consumption.

Some stakeholders reported that they frequently saw households with very high hot water temperatures, and that most people were unaware that they could reduce the temperature. Hot water systems set to high temperatures are not only more expensive to run, but can potentially result in serious injury. One household reported that they had recently had their hot water cylinder temperature reduced after advice from a friend who saw their hot water constantly running out of the 'overflow pipe' on the roof. The respondent noted that, prior to the issue being pointed out, they were unaware that the temperature of hot water systems could be changed.

#### **Cooking**

Households typically used electricity or mains gas for cooking. Although three households reported using bottled gas as they thought it was cheaper than using the electric stove. Two of these households used a small bottled gas element set up in their kitchen, while the other used a barbeque.

Some low income households reported that in order to keep energy bills affordable they would avoid using the oven; and use the stovetop instead. A few households had small benchtop ovens that they used rather than the main oven, in order to reduce energy use. One respondent noted that they would only use the stove or oven every 3 days, and heat up leftovers in the microwave on other days.

### **Other energy uses**

Some households reported using low wattage lighting, and ensuring lights were always off when not in use. However, other respondents felt that lighting doesn't use much energy so they don't actively economise on lighting energy use. One respondent noted that they could probably save money by turning off the small appliances around their house, but that as there are a lot of them it would be a hassle. Other respondents reported that they do their best to turn appliances off at the wall, but that it is often a hassle to turn them back on when they want to use them again.

Some respondents noted that space heating obviously contributes to increased energy costs during winter, but that the increased time spent inside due to bad weather would probably also increase energy bills via extra lighting, television and other entertainment energy services.

### **Key issues / implications**

Households attempting to reduce energy costs frequently reduce space heating before other energy services. For some this is because reducing heating is easier than, for example, ensuring all appliances are switched off at the wall when not in use.

As noted in section 4.2 above, some households appear to consider wearing extra clothing and blankets in a cold space as equivalent to heating that space. This could explain why some households reduce space heating energy use instead of cooking and lighting, for which there were not seen to be 'easy alternatives'.

Refrigerators can be a significant drain on energy, particularly when the seals are damaged.<sup>4</sup> The fact that no households reported this as a potential way to save energy could indicate a lack of awareness of this issue.

Some households reported that they didn't feel their efforts to reduce household energy use were reflected in their energy bills. One household thought that this was because energy prices are 'always going up', effectively countering any price reduction they would have received as a result of energy conservation. Another respondent noted that standing line charges (supply charges) make up a large proportion of many bills, and are not diminished by energy conservation behaviours. This 'lack of return' on the effort some households put into conserving energy could serve as a disincentive for households attempting to reduce household energy use/expenditure.

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<sup>4</sup> The Household Energy End-use Project (HEEP) found that on average refrigeration makes up 27% of household energy use in New Zealand (Isaacs, Camilleri, French, Pollard, Saville-Smith, Fraser, Rossouw & Jowett, 2006, p23). For more information about energy consumption of common household appliances see Appendix B2.

## 4.4 Method of payment

### Summary

- Interviews with stakeholders and respondents indicates that variable monthly energy bills can be difficult for some low income households to manage due to the need to set aside money for the large monthly expense.
- ‘Spikes’ in energy bills, associated with large winter bills or as a result of providers underestimating previous energy bills, can make it difficult for low income households to plan for variable monthly energy bills.
- The possibility of large energy bills can cause some low income households to reduce energy services to insufficient levels.
- Low income households that fall behind on energy bills can struggle to catch up due to the lack of ‘prompt payment discounts’, fees associated with reminder notices and missed automatic payment charges.
- Set weekly/fortnightly payments can enable households to avoid having to budget for monthly expenses and avoid spikes in energy costs.
- Prepayment/smart meters can also avoid the issues related to paying for energy services via a variable monthly bill.
- The need to pay for credit on prepayment/smart meters means that low income households will not build up debt with energy providers.
- Prepayment/smart meters can encourage energy conservation by making energy use data visible in real time.
- The need to pay before using the energy and the real time energy use data appears to encourage some low income households to reduce energy services to insufficient levels.
- Stakeholders noted that some low income households are falsely claiming a medical need for electricity in order to avoid disconnection, and not paying their bills.
- Some low income households are getting into serious debt to their energy providers.

This section outlines the most commonly used methods of paying energy expenses. Positive and negative aspects of each payment method will be discussed, as well as how the payment method could influence how low income households use energy.

### Monthly accounts

Many households pay for their energy services via a monthly bill, which varies based on the previous month’s energy use.

Stakeholders and respondents noted that variable monthly energy bills can lead to significant ‘spikes’ in energy costs. The most commonly reported ‘spike’ is the higher energy bills during winter as a result of increased space and water heating energy requirements. Another commonly reported ‘spike’ in energy costs is associated with the practice of some energy companies whereby only every second or third bill is based on an actual reading of energy use. When estimated energy bills are too low the next bill based on an actual reading will be significantly higher. This can result in very large spikes in energy costs, and some households had transferred to energy providers which

do not use estimated bills because of difficulty paying these large bills. Some respondents also noted that having friends and family staying can also result in a large spike in energy costs.

Stakeholders reported that low income households often struggle with paying their energy bills by the due date. When energy accounts are not paid by the due date households will miss out on prompt payment discounts, effectively adding additional charges to their energy bill. One stakeholder criticised the 'prompt payment discount' system, noting that a system which rewards those able to pay their bills on time with reduced costs, and 'punishes' those struggling to pay their bills with added charges, is counterproductive.

Stakeholders reported that some of their clients had been charged additional fees for things such as sending out reminder/final notices, and disconnection and reconnection or energy services. The additional fees, spikes in energy costs, and lack of prompt payment discount could make it very difficult for low income households to 'catch up' with their energy costs.

Another problem some respondents identified was that monthly energy bills require households to budget for the monthly expense. Stakeholders reported that some low income households lack the financial literacy to properly manage household finances. Stakeholders reported that when approached for assistance with paying energy bills, they often find that the household should be able to afford their bills but have managed their money poorly.

The 'threat' of large energy bills, or fear of getting behind on energy bills, can result in low income households reducing energy services significantly. One household reported that they tried to use as little electricity as possible as they never knew how much their energy bill would be at the end of the month. This lack of transparency in energy costs could lead to low income households reducing their energy services (including space heating) to very low levels.

***Case study five: 'Sarah' lives with her son in private rental accommodation and receives the Domestic Purposes Benefit and Accommodation Supplement.***

During 2008 Sarah struggled significantly with paying her energy bills, and at the time of the interview (winter 2009) had just managed to pay off the previous year's energy account.

Sarah's adult daughter had moved in with her during the winter of 2008 and over the Christmas period of the same year. During this period her daughter didn't contribute financially. The energy bills from the three months her daughter lived with her during winter were so high Sarah was over \$300 behind on her energy bills.

Sarah acknowledges that at the time she was 'bad with money' and that this contributed to her inability to cope with the energy bills. Her Work and Income case manager referred her to a budget advice centre, which she attended for over a month. With the help of the budget advisor Sarah managed to set up payment plans to clear the debt to her energy provider and hire purchases she had taken on.

On the advice of the budget advisor Sarah has also changed to set energy bill payments, which she says are much easier to manage as she knows how much it will cost her at the end of each month.

### **Set payments (weekly, monthly)**

A common alternative to variable monthly bills based on energy used was to pay set payments throughout the year. Energy providers have a variety of names for this payment method (flexipay, smoothpay, etc.), and some providers allow payments to be more frequent than monthly. How the level of payments is determined could be different between energy providers, but households that were aware of how it was calculated noted that it was based on the average cost from the energy used in the previous year.

Compared with variable monthly energy bills, set payments would most likely result in lower winter energy bills, and higher non-winter energy bills. This payment method will avoid the 'spikes' in energy costs associated with winter energy use and with estimated energy bills. Respondents also noted that a set monthly payment is much easier to budget for than a variable charge.

The majority of respondents paying their energy bills via set monthly payments were very satisfied with it as a payment option. Three respondents using a set monthly payment plan reported that although they preferred paying a set monthly amount, they were frustrated by their provider's lack of flexibility in terms of paying back overpayments. While policies may vary between providers, some respondents using this payment method noted that overpayments would only be returned to the clients once every year. One respondent was almost \$500.00 in credit with the power company, but was unable to access this money without paying an additional 'withdrawal fee'.

There was confusion as to whether prompt payment discounts were factored into energy costs under this payment method by all energy providers.

### **Prepayment/smart meters**

Prepayment/smart meters were common in Auckland, Christchurch and Invercargill households. This form of payment was not available in the Gisborne region. Energy retailers offering prepayment meters have their own brand names for the meters, such as InCharge, Prepower and Globug.

Paying for energy using prepayment meters involves purchasing prepay cards or a code from registered retailers, and entering this into the meter located in the customers house. Prepayment meters are typically a small box with a means to enter the prepayment card/code, and a digital display showing the account balance. More advanced prepayment meters can display additional information such as real-time energy usage data (in kWh or \$ per hour) and energy use/payment history figures.

In contrast to monthly or smoothed energy costs, prepayment meters require payment before the energy can be used. Paying for energy costs in advance will prevent households from building debt to energy providers, as well as avoiding fees associated with late payment reminder notices and disconnection.

All households using prepayment meters reported that they preferred the prepayment system to paying monthly energy bills. One household appreciated the fact that since they had installed the prepayment meter there were no more 'nasty surprises' at the end of the month. Most of these households felt that they were paying much less for their energy than when they were paying monthly bills. Some households also appreciated the ability to pay for their energy in smaller, more frequent amounts than once per month. This could make it easier for households with poor budgeting skills that may struggle to set aside money to pay for monthly expenses.

Some stakeholders were unsure whether prepayment meter customers were charged the same rate as other customers, or a higher rate.<sup>5</sup> In particular, some stakeholders were unsure whether households using prepayment meters received prompt payment discounts. Some prepayment meters have additional fees and charges, such as a fee payable each time credit is added to the account. Low income households could be paying more for their energy using prepayment meters.

Respondents noted that smart meters able to display energy use data, enabled them to appreciate the running costs of various appliances, and adjust their behaviour accordingly. One respondent noted that they were shocked to see how much it was costing them per hour to leave all of their appliances switched on at the wall. Another respondent identified the price per hour display as motivating them to ensure lights were turned off when a room was not in use.

This ability to moderate energy usage to remain within a set budget has benefits for low income households attempting to avoid debt. However, this could also lead to low income households reducing their energy services to the point where they are no longer maintaining a healthy indoor environment.

***Case study six: 'Jenny' lives with her husband and two young children in a Housing New Zealand Corporation rental property, and lives on a single income.***

Jenny notes that at the beginning of 2009 they had their power company install a prepayment meter in their house. They did this because they had struggled to pay their energy bills the previous year.

Jenny's husband noted that the previous year they would sometimes get bills that were so high they thought it must have been a mistake. However, when they talked to the power company they told them that it would probably be because the previous bill was an estimate and may have been too low.

The prepayment meter in their house enables them to see how much energy is being used, and watching their credit 'tick down' is a real incentive to conserve energy. Jenny notes that while they still have to be very careful about their energy use, but that it's better than owing the power company money.

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<sup>5</sup> Prepayment meter customers in the UK pay a higher rate for energy than other customers. However, an enquiry into whether the higher rate can be justified by additional costs to retailers is underway. For more information see the HEA Literature Review (MSD, EECA, 2010).

After seeing how much it costs to run they have stopped using their small portable electric heater, and currently have no means to heat their home.

### **Non-payment and disconnection**

In January 2008 the Electricity Commission issued updated guidelines for assisting low income and vulnerable consumers.<sup>6</sup> Guidelines include (Electricity Commission, 2008):

- regular communication to all consumers on their payment options
- arranging debt recovery in a time-frame that avoids an adverse credit situation for the retailer and minimises hardship for the consumer
- ensuring consumers enter into the most appropriate contracts for their needs
- providing consumers the opportunity to identify themselves as potentially vulnerable
- consultation with the Ministry of Social Development to assist vulnerable consumers unable to pay (requires permission from the customer)
- a visit to a consumer's home before the final disconnection takes place if previous attempts to contact the customer have failed.

Stakeholders reported that these guidelines were beneficial for low income households as it allowed them more time to 'catch up' after missing energy bills, and relieved the stress of potential disconnection.

Some stakeholders, however, reported that a small number of low income households are aware of the changes and are effectively 'abusing the system'. These stakeholders identified low income households contacting their energy provider and reporting a medical need for electricity without having a relevant health condition. Two stakeholders reported cases of low income households having no intention of paying their energy bills as they knew they wouldn't be disconnected. One stakeholder reported that they were aware of a few low income households building significant debt and then moving to another private rental property and registering for electricity under another name.

While stakeholders noted that this behaviour was unacceptable, they were also critical of some energy providers for allowing clients to get into such a high level of debt. A few stakeholders reported they had multiple clients with very high debt to their energy provider, in some cases clients owed more than \$2,000. Stakeholders reported that by allowing households to reach this level of debt they were making it significantly more difficult for them to assist households. However, energy retailers require permission from their customers before being able to contact Work and Income regarding overdue accounts.

### **Key issues / implications**

The method of payment for energy services can have implications for how low income households use energy.

Variable monthly energy costs were a common method of payment among interviewed households, but are potentially problematic for low income households. The variable nature of the energy bills makes it difficult for households to budget for energy costs, and can lead to problems paying particularly large bills. In an attempt to avoid potential

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<sup>6</sup> For more information see: <http://www.electricitycommission.govt.nz/opdev/retail/lowincome>

'spikes' in energy costs, many low income households may reduce their energy consumption, particularly during winter when energy costs tend to be highest. As space heating energy is often the first energy service to be reduced, this could lead to low income households living in cold houses to avoid potentially large energy bills.

Set payment plans avoided the potential for sudden large energy bills, and enabled households to budget for a set amount each month.

Large energy bills and falling behind on paying energy bills contributed to some low income households reducing their energy services to the point where they were not maintaining a healthy indoor environment. Low income households that fall behind on paying energy bills often struggle to 'catch up'. Loss of prompt payment discounts and fees associated with reminder notices can make this particularly difficult for low income households. Some stakeholders questioned the purpose of these measures.

Prepayment meters were widespread in some parts of the country, and stakeholders reported that the number of households using this payment method is increasing rapidly. The ability to see energy use data allowed households to change energy use patterns in order to remain within a set budget. There is the potential for this to result in low income households reducing their energy use to unhealthy levels in order to remain within a set budget.

## 5.0 Energy hardship

The second objective of this report is to contribute to the development of a quantitative survey exploring the prevalence of energy hardship and identifying associated factors. This section is intended to contribute to that objective, by exploring energy hardship as experienced by low income households and the stakeholders that assist households struggling to make ends meet.

The first part of this section outlines energy hardship as understood by the stakeholders, and how this relates to the project team's definition. Following this, factors associated with energy hardship will be discussed under six main headings:

- income
- energy costs
- non-energy costs
- house
- household
- awareness/knowledge

### 5.1 What is Energy Hardship?

The Household Energy Affordability project team define energy hardship as 'the inability to afford access to sufficient energy services'. Defining 'sufficient' energy services is problematic, and as a result indicators of 'insufficient' energy use will be used to determine households in energy hardship. For example, a household staying in bed to stay warm could be described as accessing insufficient energy services. For more information see the Household Energy Affordability report [Measuring Energy Affordability](#) (MSD, EECA, 2010b).

Recruitment for interviews with low income households was carried out by stakeholders in each region. Stakeholders were asked to recruit low income households that were either currently struggling with paying for energy services, or who had struggled previously but were now able to afford sufficient energy services.

Most stakeholders appeared to define a household as being in energy hardship if:

- they are unable to afford their energy bills, OR
- they are unable to heat their house

The stakeholder definition of energy hardship is consistent with the HEA project team's definition.

### 5.2 Income

#### Summary

- Interviews with stakeholders and respondents indicates that many low income households struggle to afford to pay their energy bills.

- While some of these households have inadequate income, others struggle due to poor financial literacy or budgeting skills.
- Budget advice may be an effective means of addressing energy hardship.
- Low income households often include population groups more likely to spend longer periods of time at home (older people, beneficiaries, people with disabilities and young children) which increases energy use/expenditure.
- Redundancy can result in significant difficulty affording energy services as commitments made in anticipation of a higher ongoing income can result in financial difficulties.

Nearly all stakeholders noted that low income households are more likely to struggle with paying energy expenses. This indicates that low income is a key risk factor for energy hardship.

Three stakeholders commented that energy efficiency technology advances are typically only an option for wealthy households as they are often very expensive.

Some stakeholders noted that there are households that have been living on a low income for a long period of time that may become accustomed to it, and not expect any more than what they have. One stakeholder noted that these households will be accustomed to living in a cold house and not seek assistance with this as it has become the norm for them. This could indicate that energy efficiency and clean heat interventions would reach more vulnerable households if they are more proactive. Another respondent commented that for some low income households the norm is living in cold damp homes and they don't, for example, see mould on the walls and ceiling as problematic.

### **Insufficient income vs poor financial literacy**

While acknowledging that some households have insufficient income to meet their needs, stakeholders reported that poor financial literacy and a lack of budgeting skills contribute to some households being unable to cope financially.

Some low income households reportedly struggle with prioritising expenditure, often making poor decisions about how to use their income. Stakeholders reported that they frequently work with low income households prioritising 'non essentials' like SkyTV and entertainment consoles over 'essential' expenses such as power and food. Stakeholders also reported that some low income households take on serious debt without fully realising the cost of personal loans and hire purchases. For example one respondent had been referred to a budget advice service as they had significant debt (including over \$500 owed to their energy provider) and were unable to pay their energy bills. With the assistance of budget advisors the respondent noted they are able to afford all household bills and are working towards clearing their debt. This indicates that financial literacy based interventions may be an effective in enabling some low income households to afford to maintain a healthy indoor environment.

Some stakeholders noted that Work and Income is able to redirect benefits in order to pay energy companies directly, with permission from clients. This assumes the household is receiving sufficient income, but using it unwisely resulting in their energy

services not being paid. One stakeholder discussing this intervention noted that households 'wouldn't learn', and preferred budget advice.

### **Low income workers**

Some stakeholders noted that they are seeing more low income workers requiring assistance with affording energy bills, where in the past it was typically only beneficiaries seeking assistance. One stakeholder thought that this trend was related to the increasing cost of basic household expenses making it harder for low income workers to cope.

Two stakeholders noted that they were concerned that some low income workers would incorrectly assume they were ineligible for Government funded energy efficiency retrofit grants as they would assume that this support was available to beneficiaries only.

### **Loss of income or savings**

Stakeholders also noted that redundancy and downsizing of jobs can lead to significant hardship. Households affected by unexpected redundancy frequently have commitments such as mortgages and hire purchases which they may be unable to afford on a reduced income. One stakeholder also thought that 'lifestyle adjustments' would make such a transition difficult for households, and potentially lead to debt through poor decisions about expenditure.

One stakeholder reported that they were aware of some, mostly older, people who had lost the majority of their savings in 2007-2009 finance company collapses. As with redundancies and job downsizing, households in this situation may struggle to pay household bills due to financial commitments made in expectation of a higher ongoing income.

### **Income based assistance**

Work and Income can provide recoverable grants to assist with paying energy expenses when clients are struggling financially. Some households we interviewed had accessed this assistance with paying for an overdue energy bill or purchasing a space heating appliance. However, some households reported that they would not access this assistance as the repayments would mean that they have a reduced income while paying the grant back. Stakeholders also stated that this was potentially problematic; noting that while \$5-\$10 per week repayments may not sound like much, it represents a considerable amount for some low income households. One stakeholder noted that if households are struggling with making ends meet to the point where they need to access assistance any reduction in weekly income for repayments is likely going to contribute to further shortfalls. This indicates that some people in need of assistance with energy expenses may choose not to access Work and Income help as the repayments act as a disincentive.

Some households we interviewed had accessed budget advice services, and almost all of them reported that the advice and strategies they learnt have enabled them to better manage their household finances. Respondents were able to describe positive changes in their lifestyle as a result of receiving budget advice. Respondents described important goals and milestones they had reached, such as paying off debt to their power company, saving to send children on a school camp, and for some being able to afford all the bills at the end of the month. The majority of these respondents were referred to budget

advice by Work and Income case managers. Budget advice appears to be a very effective intervention for low income households struggling with energy bills.

Some households reported accessing finance companies for personal loans when unable to afford all of their bills. This behaviour is an example of the poor financial decisions that people make due to a lack of financial literacy. Stakeholders noted that these households are frequently unaware of how much the personal loan will end up costing them after interest. This could indicate that more pro-active referrals to budget advice could assist low income households from accruing significant debt leading to difficulty paying energy costs.

### **5.3 Energy costs**

#### **Summary**

- Interviews with stakeholders and respondents indicates that increases in energy costs (electricity, gas, and solid fuel) over the past few years have made it increasingly difficult for some low income households to afford to maintain a healthy indoor environment.
- The cost of electricity was thought to have increased more than other energy sources.
- Electricity prices vary around the country, indicating that living in some areas of the country could be associated with increased risk of energy hardship.
- Increased energy costs during winter can lead to energy hardship for some low income households that are able to cope during the rest of the year.
- On the West Coast of the South Island, reliance on electricity, as opposed to the relatively cheap solid fuel, was considered by many respondents a risk factor for energy hardship.
- The ECan Clean Heat legislation could lead to increased rates of energy hardship where low income households switch from solid fuel burners to relatively more expensive electricity.
- Stakeholders noted that many households are using bottled gas for space heating, incorrectly assuming they are using the cheapest heating source.
- Solid fuel and bottled gas are paid for prior to use, in contrast to most electricity payment options. As a result households using solid fuel or bottled gas:
  - are unlikely to spend beyond their ability to pay for the energy, reducing debt to energy providers
  - will be unlikely to access sufficient energy services (such as space and water heating) if they are unable to pay for the energy services.

Respondents noted that energy costs had increased over the past few years (electricity, gas and solid fuel to varying degrees), and that this had made it harder for low income households to make ends meet.<sup>7</sup>

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<sup>7</sup> Between 1998 and 2008 residential electricity prices have increased from 13.2 c/kWh to 23.7 c/kWh, and residential gas prices have increased from 17.1 \$/GJ to 41.0 \$/GJ. For more information about increases in the cost of residential energy see Appendix B3.

Stakeholders noted that low income households are more likely to include older people, families with young children, people with disabilities and beneficiaries. These groups all spend more time at home than people in paid employment, increasing demand for energy services such as space heating, lighting and entertainment.

Some stakeholders reported that higher energy costs during winter result in a significant increase in demand for social support services, indicating that households able to cope for most of the year are sometimes unable to cope with the increased energy costs during winter. This could indicate that seasonal assistance may enable some low income households to afford to maintain a healthy indoor environment during winter, as opposed to assistance being required year round. The UK Government provides winter fuel payments at the beginning of winter to people aged 60 years and over to help with increased energy costs during this period.<sup>8</sup>

Two stakeholders reported that New Zealanders typically don't 'shop around' when it comes to energy providers, and note that a lot of households could be paying more for their energy services than they would be if they swapped to a cheaper energy provider. Some respondents indicated that they were unaware of where to go in order to compare energy prices. This indicates that encouraging energy consumers to compare retailer prices could reduce average household energy bills. This could also indicate that without increased education/awareness related to energy prices, any intervention aimed at increasing competition within the energy sector with the purpose of reducing household energy prices could be less successful than intended.

### **Electricity**

Electricity prices were thought to have increased more than other energy types over the past few years. In addition, some households and stakeholders identified that the number of 'gadgets' and small appliances in households have been increasing rapidly over this period, potentially leading to an increased demand for electricity dependant energy services.

Most respondents on the East Coast of the North Island and on the West Coast of the South Island noted that they pay more for electricity than the rest of the country.<sup>9</sup> On the West Coast, households reported that they wouldn't consider living in a house without a solid fuel burner as the price of electricity meant electric space heating was unaffordable. Stakeholders on the West Coast noted that households reliant on electricity for space heating were more at risk of living in energy hardship.

### **Solid fuel**

Solid fuel was cited by many households as a relatively cheap form of space heating, and some stakeholders noted that there are households that gather wood in order to effectively heat their home for no cost. As such, the presence of a solid fuel burner within

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<sup>8</sup> For more information see [http://www.direct.gov.uk/en/Pensionsandretirementplanning/Benefits/BenefitsInRetirement/DG\\_10018657](http://www.direct.gov.uk/en/Pensionsandretirementplanning/Benefits/BenefitsInRetirement/DG_10018657)

<sup>9</sup> Based on analysis of Ministry of Economic Development (2009) data for November 2009, electricity prices in the East Coast region are on average 40.11 c/kWh and in the West Coast region they average 40.71 c/kWh. These prices are considerably higher than in some regions of New Zealand, such as Dunedin with an average of 28.07 c/kWh. These prices include both line and retail charges. For more information on regional variation in energy prices see Appendix B4.

a house was considered by some as a protective factor; reducing the risk of energy hardship.

The fact that solid fuel is typically paid for prior to use was considered to reduce the chances of low income households falling behind on energy bills. Electricity bills are often paid for after the power has been used, and if unaffordable this can lead to loss of prompt payment discounts, late fees and debt (note that prepayment electricity meters are one method of paying for electricity prior to use, see section 4.4). However, paying for solid fuel up front also means that households unable to afford the coal and/or wood are forced to go without heating.

As noted above, households on the West Coast reliant on electricity for space heating were considered to be more at risk of energy hardship than those able to make use of solid fuel. In addition to those without a solid fuel space heating appliance, stakeholders noted that specific population groups were less likely to be able to access and use solid fuel, such as:

- older people, who may be unable to cope with the physical nature of accessing and using solid energy services
- people with disabilities that make it difficult to cope with the physical nature of accessing and using solid energy source
- households that lack a car and/or trailer to transport the solid energy sources.

A number of stakeholders in Christchurch were concerned that the introduction of regulations banning the use of solid fuel burners would have a significant negative impact on some low income households. In particular, low income households transitioning from solid fuel to relatively more expensive electricity for space heating were thought to be at risk of being unable to afford to heat their home. Tenants living in private rental accommodation could also face an increased risk of energy hardship if their landlord removes the solid fuel burners, but doesn't take up the Environment Canterbury partial subsidy offer to replace them with another source of space heating. This could indicate that energy hardship rates will increase in Christchurch following the Clean Heat regulatory changes.

### **Gas**

As noted above, some of the low income households we interviewed and some stakeholders incorrectly considered bottled gas to be the cheapest source of space heating. This misunderstanding could result in a number of low income households around New Zealand spending significantly more on space heating than they would if using electricity or solid fuel.

Few respondents were aware of the negative health consequences of using unflued gas heaters without proper ventilation. As a result some households could face additional health related costs associated with using an unflued gas heater. The high price of bottled gas, potentially combined with additional health costs associated with UGH use, indicates that households reliant on UGH could face an increased risk of energy hardship.

***Case study seven: 'Hamish' is a student and lives in a flat with two other people, both in paid employment.***

Hamish and his flatmates rely on a solid fuel burner with a wet back for space and water heating during winter. They purchase coal by the trailer-load, splitting the cost between each member of the flat.

Last month one of Hamish's flatmates lost his job and they were unable to afford to purchase the coal. As a result they have had to switch their hot water system back to use electricity, and have been using a portable electric heater to heat their living area. When the electricity bill arrived it was much more than they expected, and as a result are unable to afford to purchase coal for a second month.

Hamish is concerned that the high ongoing cost of electricity will result in them being unable to 'switch back' to using coal for space and water heating until the end of winter. Hamish is considering not paying the power bill so that they can afford to purchase coal and begin to reduce their expenditure on energy.

## **5.4 Non-energy costs**

### **Summary**

- Interviews with stakeholders and respondents indicates that increases in non-energy household costs have made it increasingly difficult for some low income households to afford sufficient energy services.
- Unexpected expenses such as costs associated with a health incident or death in the family can create significant hardship as low income households are forced to cut back on typical household expenses such as energy.
- Some households face added pressure due to 'extra' costs such as regular healthcare costs, high transport costs and/or costs associated with family staying.
- Drug and alcohol use, and gambling can significantly increase risk of energy hardship among households that could otherwise cope.

Stakeholders noted that non-energy household costs can also increase risk of energy hardship. When unable to afford all household expenses, some households will reduce energy services in order to keep energy bills low and make ends meet.

In addition to high and increasing energy prices, non-energy prices were also cited by respondents as having increased significantly and contributing to energy hardship in a number of low income households. The price of food, petrol and accommodation were all cited as having increased significantly over the past few years. Many respondents noted that benefits and other forms of assistance had failed to increase to the same level as these costs, and as a result many low income households are now struggling when they had previously been able to meet all costs.

### **Sudden expenses**

Stakeholders and respondents note that households that can usually make ends meet can sometimes experience significant hardship when faced with sudden, unexpected

expenses. Specific examples given were costs associated with a health incident, a death in the family and urgent car or house repairs. These costs can lead to cutting back on energy services and/or getting behind on energy bills. One household reported that they were able to afford all their bills, but that their car was 'on its last legs' and they were worried about how they would pay to repair or replace it.

### **'Extra' expenses**

Stakeholders appeared to make a distinction between the impact of the increasing price of 'essential' or 'typical' expenses, and the impact of 'extra costs' faced by some households. While there was some variation between stakeholders, most identified the following as 'typical' expenses:

- accommodation costs (rent, mortgage)
- food
- energy services

The following were the most common 'extra' expenses identified by stakeholders and low income households:

- high or regular healthcare costs
- high transport costs
- costs associated with raising children (including school fees and uniform costs)
- debt repayments and interest
- drugs, alcohol and gambling problems.

Most low income households were thought to be struggling with increasing 'typical' expenses. Stakeholders noted that low income households facing the 'extra' expenses were more likely to be at risk of energy hardship than those without these costs. Households with a large number of these extra expenses were thought to be significantly more at risk of energy hardship. For example, older people often have high healthcare costs and are reliant on expensive taxi or shuttle services for transportation.

Low income households were asked about how they prioritise expenditure in situations where they are unable to afford to pay all expenses. Most households reported that they would ensure accommodation costs and food had been covered before considering other costs. There was significant variation in terms of how low income households chose to prioritise other expenses. For example, some households would prioritise energy services and healthcare costs, while others saw transport costs as more essential than both of these due to the need to get to work and take children to school.

### **Healthcare**

Several respondents identified high healthcare costs as making it difficult to afford other essential expenses such as energy services. One respondent with significant healthcare costs noted that they received a Disability Allowance which usually covered their expenses, but some weeks they had to go without other things in order to pay for higher than usual health related costs.

### **Family staying**

Some households reported that family and friends visiting can make it difficult to afford energy costs. This was particularly common in Auckland, where several Pacific households talked about cultural expectations related to providing large family meals after church and hosting family visiting New Zealand. Other respondents noted that the

Christmas holiday period can be particularly problematic due to costs associated with family visiting.

A related issue is that of grandparents as primary carers for children. Three stakeholders in Auckland identified this as an increasingly common scenario, and one that can result in significant financial hardship. Additional costs related to healthcare, school fees, food and additional energy services can be difficult to afford, particularly for people reliant solely on New Zealand Superannuation.

### **Drug, alcohol and gambling problems**

One stakeholder from Work and Income described the impact that drugs, alcohol and gambling can have on low income households. They noted that it is increasingly common for clients to seek assistance with paying household expenses due to addiction, when they would otherwise be able to cope financially. This indicates that for some households struggling to pay energy bills, the most appropriate intervention will be treatment for drug, alcohol and/or gambling addiction.

## **5.5 House**

### **Summary**

- Houses in poor condition typically require more energy to heat, increasing risk of energy hardship.
- People living in substandard housing (such as garages and caravans), which was described by stakeholders as an increasingly common problem, are also thought to have an increased risk of energy hardship.
- Houses in the colder regions of New Zealand such as the lower South Island require more energy to heat, indicating colder regions of New Zealand may have increased rates of energy hardship.
- Some rural households require extra energy to run water and septic pump systems, increasing risk of energy hardship.
- Some low income households that own their own homes are unable to afford to maintain them.
- Low income renters could be more at risk of energy hardship when landlords are not prepared to insulate or install energy efficient heating appliances.
- Lack of curtains and/or carpet in rental houses can increase the energy required to maintain a warm house during winter.
- When landlords take a long time to carry out basic maintenance work, or fail to do it at all, this can indicate to some tenants that the landlord would not be interested in carrying out more involved energy efficiency retrofits.

Qualities related to the house were identified by several respondents as contributing to the relative risk of energy hardship for the occupants. The condition, design, location and tenure were all identified as important factors in determining risk of energy hardship.

## **Condition**

Stakeholders noted that people living in poor condition housing have a much higher risk of energy hardship than those living in houses in better condition. Houses in very poor condition are often not as airtight, and the building envelope lets out significantly more heat than a well maintained property. As a result, households will be required to use more heating energy in order to achieve a given temperature, resulting in higher energy costs. Some stakeholders thought that older people who own their own home were more at risk of living in houses in poor condition as they are often unable to afford to maintain their property due to a limited income.

Poor quality housing was considered an important risk factor by stakeholders in all areas of the country we carried out interviews in. However, it appeared to be particularly problematic on the West Coast of the South Island. We spent some time travelling around some of the smaller rural communities near Greymouth and there is a significant need for basic home maintenance and repair work in a number of houses. In Blackball for example, the majority of the homes needed significant basic maintenance. Many of the homes had large sections of rotten boards on external walls, sunken piles, and rusted roof iron (some rusted to the point of having large holes in the roof). One stakeholder thought that the high rate of houses in poor condition could be because of historically low house prices in the area, making them affordable for low income families to purchase but then being unable to afford to maintain them.

Stakeholders in the East Coast area also raised the issue of poor quality rural housing in their region. They cited houses on Maori land with older Maori living in them who have been there their whole lives and have not carried out any maintenance on the house. Some of these houses are very isolated and have no electricity or running water, but the occupants may be reluctant to accept outside interference.

Three stakeholders also noted that prior to any energy efficiency interventions essential repairs will usually have to be carried out. Any insulation, clean heating etc., put into a poor quality house will have a greatly reduced impact on the ability of the house to retain heat. For example, insulating a ceiling space with large holes in the fabric of the roof would result in the insulation being less effective at retaining heat or potentially ruined. This indicates that the worst condition houses may not be eligible or able to make the best use of existing EECA retrofit subsidies.

Stakeholders reported that they are seeing increasing numbers of people living in unsuitable housing, such as garages and campervans. These dwellings are typically less effective at retaining heat than a house, potentially resulting in significantly more energy being required to heat the space. Some stakeholders in Auckland reported that this appeared to be more prevalent in Pacific households, particularly in large extended families or when family members visit.

## **Design**

Respondents described various ways in which building design can influence energy use within a house. Orientation towards the sun can trap free solar heat and make it easier to keep a house warm. Poorly oriented houses with little or no direct sunlight will be unable to take advantage of this heat. One house we visited was a single building divided into a series of flats. The 'back flat' which we visited had no direct sunlight at any point during the day, and the respondent reported that it was often very damp and that they struggled to heat the space.

One respondent noted how the open archway (instead of a door) from their living area into the hallway and bedrooms prevented them from keeping the heat in one part of the house. As a result the whole house was slightly warm, but no room was comfortable. Several respondents lived in large old houses which they found difficult to heat due to the high ceilings.

### **Location**

Most respondents thought that households in the colder regions of the country would struggle with paying winter energy bills more than households in warmer regions. The HEA literature review found that households in the colder regions of New Zealand spend substantially more on space and water heating than other areas of the country (MSD & EECA, 2010).

Five of the stakeholders in the Gisborne region commented that the cost of living 'up the coast' in particular is higher than in other parts of the country. They noted that basic expenses like petrol and electricity cost more in their region due to greater transport and supply costs involved in supplying isolated areas.

Some rural households noted that they require additional electricity to run water and septic tank pump systems unlike urban households. The higher energy costs associated with these energy services could result in some rural households having an increased risk of energy hardship.

Three stakeholders in Christchurch commented that there is a high water table there as it is built on a swamp. This exacerbates problems associated with damp and mould, and can make it harder to heat a home. Stakeholders in parts of the West Coast and Gisborne also noted that certain parts of their regions are built on swamps, which can make homes very damp.

### **Home ownership**

As noted above, some low income owner-occupier households are struggling to afford essential repairs and maintenance on their homes. One stakeholder noted that it is often better for low income households to live in private rental accommodation than to save for a deposit on a house, as in private rental accommodation landlords are required to maintain the property. However, several stakeholders identified that home owners were generally less likely to be in energy hardship as low income private rental accommodation was seen a potential risk factor for energy hardship.

### **Private rental accommodation**

Some respondents reported that private rental prices had increased significantly over the past few years, and some stakeholders commented that the Accommodation Supplement had not 'kept up' with the increasing private rental costs.<sup>10</sup>

Private landlords were seen as a potential barrier to low income households benefiting from the EECA ENERGYWISE™ homes subsidy. Landlords of tenants with Community Services cards are entitled to increased funding towards the purchase and installation of insulation and energy efficient heating appliances. Despite this, several respondents

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<sup>10</sup> The Accommodation Supplement (AS) was last increased in 2005 for some areas of the country. For more information about AS, including details of this increase, see Appendix B5.

noted that they didn't think their landlords would be interested in the subsidy due to the requirement to partially fund the scheme. Some of these respondents had approached their landlords previously to ask about insulation and installation of efficient heating appliances and had been turned down, while others 'got the impression' that their landlord wouldn't be interested. Some respondents noted that their landlords often took a long time to fix basic problems with their house, or simply refused. These respondents felt that as their landlords were so unresponsive to basic maintenance requests, there was no chance of getting assistance with anything as substantial as insulation.

A few stakeholders posed the question, if landlords are able to rent out their properties in very poor condition, why would they bother paying for energy efficiency retrofits? Some stakeholders thought that the EECA ENERGYWISE™ subsidies should be made more attractive to landlords, while others thought that there needed to be a higher quality standard required before a property can be rented.

Several stakeholders thought that stronger regulation was required to enforce landlords to ensure their properties met a minimum standard before they could be let. Stakeholders, in Christchurch in particular, commented that the raised awareness of issues around insulation and heating in that region has resulted in the expectations of tenants becoming more discerning so more properties for rent were being advertised as insulated with heating provided (eg heat pump).

Some low income households reported that they wouldn't approach their landlord about repairs and energy efficiency retrofits as they were concerned that it would increase their rent.

***Case study eight: 'Maria' lives alone in private rental accommodation, and receives New Zealand Superannuation and Accommodation Supplement.***

Maria lives alone in a small one bedroom flat, and notes that the house is very hard to keep warm. She doesn't think the house has any insulation at all and it's very drafty. On windy days the breeze goes in one side of the house and out the other, as all of the windows and external doors are loose. Her lounge/bedroom has large glass sliding doors, but they don't get any direct sunlight so they only make the room colder.

Maria has an electric bar heater but doesn't use it as she says that it's 'not worth it' because the house gets cold very rapidly after the heater is turned off.

Maria has asked her landlord to address the issue with the windows, as well as fix broken guttering and her clothesline. To date all that has been fixed is the clothesline, and that took nearly three months. Although she has heard insulation can make your house a lot warmer, Maria doesn't think she will ask her landlord to insulate the house because of how long it takes to get repairs done, and because there are other things (guttering) that she would like repaired first.

**Housing New Zealand Corporation properties**

Reports from stakeholders and respondents about the condition and energy efficiency of HNZN homes varied considerably between regions. Some stakeholders criticized the

poor condition of the HNZC housing in their area, stating that it was frequently worse than private rentals. On the other hand, several stakeholders reported that HNZC houses were very well maintained and considerably better than the low income private rental houses in the region.

Several stakeholders noted that some Housing New Zealand Corporation (HNZC) houses do not have curtains and in some cases have no carpet. Respondents and stakeholders alike noted that curtains are an effective way to retain heat in a house, and that lack of curtains would make it much harder to maintain a warm home. One household we visited reported that the lack of curtains not only made it colder at night, but they also felt less secure in their home as people could 'just look in the window'.

Some respondents living in HNZC houses reported that they had to wait for a significant period of time to get basic maintenance work carried out, such as restringing clotheslines and fixing broken guttering. Two of these respondents said that they wouldn't bother asking about insulation as they thought it would be a waste of time. Stakeholders provided examples of being asked to advocate for HNZC tenants to remedy a housing related problem that they felt was being ignored.

Several HNZC tenants we interviewed have had their houses retrofitted and are very happy with the results. These respondents all noted that their home was much warmer following the retrofit.

HNZC is undertaking modernisation and energy efficiency projects around New Zealand, including insulation of houses. The variation in the reported condition of HNZC houses identified by stakeholders and respondents is likely to reflect the fact that while many houses have been renovated, many more are either underway or awaiting retrofits. For more information about HNZC retrofits see Appendix B6.

***Case study nine: 'Sue' lives with her three children in a Housing New Zealand Corporation rental property and receives the Domestic Purposes Benefit.***

Sue noted that keeping her house warm is a high priority for her as she has three young children. During 2008 Sue was using two oil column heaters and a fan heater to try to keep her house warm. Sue struggled to keep up with paying her energy bills, and as a result was contacted by her energy provider who suggested she get in touch with Work and Income.

Sue approached Work and Income who worked with her to address the issue. They provided her with a loan to pay off the debt to the energy provider, and contacted HNZC to ask them if they could do anything for the household. HNZC installed a large wood burner and insulated the ceiling of Sue's house before the end of the winter. At the time Sue didn't think of approaching HNZC for assistance, but thinks that she could have gone to them for help earlier.

The wood burner keeps the whole house warm, while her old oil column heaters only warmed the lounge. Sue is able to access very cheap firewood from sawmills and is able to afford to keep her house warm all day during winter.

## 5.6 Household

### Summary

- Interviews suggest that multigenerational households where the majority of adults are in paid employment appear less likely to be in energy hardship due to the ability to take advantage of economies of scale on expenses such as household energy.
- However, when the majority of adults have no income multigenerational households appear to increase the risk of a household living in energy hardship.
- Older people are more likely to have multiple risk factors for energy hardship, for example:
  - low average income
  - increased time spent at home, increasing energy costs
  - high healthcare and transport costs
  - resistance to ask for or accept assistance.
- Some refugees and recent migrants face multiple barriers to being able to maintain a healthy indoor environment:
  - language and cultural barriers to awareness and understanding
  - contrast between required practices in their country of origin and New Zealand.
- Some people with disabilities require additional energy, increasing their risk of energy hardship.
- Single person households are unable to take advantage of economies of scale which larger households are.

Both the household type (for example extended family, single person, etc) and certain attributes of the members of the household were considered to contribute to energy hardship. This section outlines specific household types and population groups which stakeholders considered to have an increased risk of energy hardship.

### Multigenerational households

Stakeholders in South Auckland reported that multigenerational households are relatively common in the region, particularly among Pacific people. Opinion was mixed as to whether this household type protected against energy hardship or should be considered a risk factor. Interviews with four multigenerational households indicates that the proportion of adults in employment is an important factor in determining whether the household is more or less likely to be in energy hardship. Multigenerational households where the majority of adults are in paid employment appear to be able to take advantage of the economies of scale (such as with energy bills) which smaller households would not. However, multigenerational households with few working age people in employment (or where there is a high proportion of older people and/or children) appear to have an increased risk of energy hardship due to the number of people dependant on a limited income.

As noted above, some stakeholders noted that large extended family living arrangements can often lead to some members of the household living in substandard housing, such as garages and caravans.

### **Older people**

Several stakeholders reported that older people were a population group significantly more at risk of energy hardship than other groups. Stakeholders typically identified multiple factors contributing to this increased risk.

Older people often have low disposable income, with many relying solely on New Zealand Superannuation.<sup>11</sup> Two stakeholders reported that financial abuse of older people can result in significant hardship, and in these situations there would be very little money to pay for energy services such as space heating.

Stakeholders also noted that older people often have high healthcare costs and limited mobility meaning they are often reliant on taxis for transportation. As older people typically spend longer periods of time in their homes than working age people they will face an increased demand for energy services such as space heating and lighting. As noted above, older people may struggle with accessing and using solid fuel energy sources. This was identified as a risk factor on the West Coast due to the relatively high cost of electricity. The combination of low income, high energy and non-energy costs indicates that older people may be more likely to struggle with affording sufficient energy services.

Some stakeholders reported that older people tend to be reluctant to ask for or accept assistance. One stakeholder reported that they had been told by some older people that they would prefer to get by without 'hand outs'. This could indicate that older people may be less likely to seek assistance, and that there may be some resistance to energy efficiency interventions.

### **Refugees and recent migrants**

Some stakeholders noted that refugees and recent migrants have an increased risk of energy hardship. Language and cultural barriers can make it difficult for these households to make informed decisions about things such as which energy provider to use, how to resolve difficulties paying energy costs, and how to access services and supports. Stakeholders noted that most refugees arrive with little if any possessions or savings. One stakeholder suggested that the notion of going to Government agencies for assistance could be completely alien for some refugees and recent migrants who would be more familiar with receiving assistance from churches or aid agencies.

Two stakeholders also noted that some refugees and recent migrants will struggle to adjust to the climate in New Zealand. The extent to which New Zealand households need to be heated and kept dry may be completely new to them. How to use heating appliances, pay energy bills etc, may be skills that need to be acquired. Some households will have come from countries where there was no need to heat indoor spaces. When asked about insulation one household of refugees we interviewed had

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<sup>11</sup> The Positive Ageing Indicators 2007 report notes that, based on analysis of the 2004 Living Standards Survey dataset, approximately 8% of New Zealanders aged over 65 years are living in some degree of relative material hardship (MSD, 2007).

never heard of insulation as they had come from a very warm country. They reported that their New Zealand house was very cold and difficult to keep warm.

Lack of budgeting skills was also highlighted as a significant issue facing refugees and recent migrants.

Some stakeholders noted that a key determining factor in whether refugees and recent migrants access the services and supports they need is the ability of frontline social service providers to relate to individuals from a variety of backgrounds. This could indicate that making use of advocates inside various refugee communities to publicise energy efficiency and clean heat services and supports could increase take-up among these households.

### **Pacific people**

Generally, stakeholders in Auckland identified Pacific households as being more at risk of energy hardship. They noted that Pacific households have a lower average income than non-Pacific households, and are more likely to be 'overcrowded' (see discussion of multigenerational households above).

Two stakeholders commented that Pacific people tend to experience an earlier onset of 'age related' health conditions than non-Pacific people. This suggests Pacific households may face added healthcare costs at an earlier age than non-Pacific households, and could also have implications for retirement age. This could indicate that when using age as a predictive risk factor for energy hardship, ethnicity may need to be taken into account.

Four stakeholders in Auckland were concerned that some low income Pacific families were struggling with paying for expenses such as energy bills due to tithing to their churches. One stakeholder said that they had been approached for assistance from some Pacific families who were unable to afford their bills yet were still tithing. Two stakeholders noted that for many Pacific families tithing to their church was a social expectation, and that being unable to afford to contribute would be very embarrassing.

### **People with disabilities**

Stakeholders noted that some people with disabilities have an increased risk of energy hardship due to a combination of low income and high healthcare costs.

Stakeholders noted that people with disabilities may face additional energy charges, for example those that need to maintain a very warm house at all times of the day, run oxygen machines or who need to charge wheelchair batteries. Some people with disabilities would also spend longer periods of time at home than people in paid employment and/or at school, a factor that may contribute to high energy costs.

### **Single person households**

Several stakeholders suggested that single person households are more at risk of energy hardship than larger households, due to being unable to take advantage of economies of scale when it comes to running a household. For example, cooking, lighting and space heating energy costs are likely to be similar for a single person household and a family of four.

## **5.7 Awareness and knowledge**

### **Summary**

- Interviews with stakeholders and respondents indicate that many households are unaware of the importance of maintaining a warm, dry indoor environment.
- There are households that think they are maintaining a healthy indoor environment, but are heating their homes to very low temperatures.
- Stakeholders noted that the long payback time and transient nature of some low income households makes energy efficiency retrofits less attractive than alternative investments such as appliances and cosmetic renovations.
- Respondents that had not lived in an insulated house appeared to be less able to appreciate the benefits of insulation, and less interested in insulating their home.

### **Awareness of the importance of a warm healthy home**

As noted above, stakeholders indicated that when attempting to reduce expenditure on energy low income households will typically reduce space heating energy services first. Stakeholders noted a need for increased publicity about the importance of warm, dry homes as well as alternative (non-space heating) ways to reduce energy consumption. Several stakeholders noted that raising awareness of simple ways to reduce household energy consumption would have positive benefits for many low income families. Stakeholders noted that in order to reach some low income households this information needs to be delivered face to face, as opposed to in writing.

While some respondents noted that they were able to heat their homes sufficiently, during interviews it became apparent that they were heating their houses to a low temperature. This could reflect different expectations or comfort levels, or lack of awareness of healthy indoor temperatures. Many low income households may incorrectly believe they are mitigating the negative health risks associated with a cold home by heating their home to 'take the chill off'. Increased awareness of recommended indoor temperatures could result in health benefits for those low income households that are able to afford to heat their home to adequate levels.

Two stakeholders noted that, while energy conservation is important, they are concerned that some households will be reducing their energy use to the point where they are no longer maintaining a healthy home.

### **Attitudes to retrofits**

Stakeholders note that some low income families who own their own home are unlikely to be interested in investing in energy efficiency retrofits such as insulation or installation of clean heating appliances. Most energy efficiency retrofits are marketed as paying for themselves by reducing energy costs, however this payback time is often 10 years or more. Stakeholders note that for many home owners, insulation and other retrofit options are seen as a less attractive purchase than things like big screen TVs or cosmetic home renovations. Some stakeholders also noted that low income households tend to move house more frequently which also makes the long payback time on retrofit options less appealing.

Households we interviewed that were currently or had previously lived in an insulated home were typically very happy with the insulation, one individual noted that they would never live in an uninsulated house again. On the other hand, some people who have not lived in insulated houses did not appear to appreciate the benefits of insulation, and some were less likely to be interested in insulation. This could have implications for increasing interest in energy efficiency retrofits among low income households that are unable to appreciate the benefits of insulation.

One household that had their property insulated said that they were unable to notice any difference at all in terms of comfort. However, further discussion revealed that this household was not heating their home and that they thought the insulation alone would make their home warm. Insulating a home without heating it is effectively creating a large fridge.

## 6.0 Discussion

### How are low income households using energy?

Some low income households are accessing insufficient energy services, frequently going without or significantly reducing space heating energy services first. While very few homes we visited were going without space heating entirely, many were being heated to very low temperatures.

Respondents adopted various coping strategies in response to living in a cold, damp home, such as:

- wearing multiple layers of clothing/blankets inside
- staying in bed for longer periods of time during winter
- having the family all sleep in one room
- spending time in heated public spaces (libraries, malls) during the day.

For some households these coping strategies appeared to have become almost normalised and not necessarily seen as a problem. Some households appeared to see these as viable alternatives to heating their home, which may be why space heating is often reduced before other energy services for which there are no easy 'alternatives'.

In contrast to this, some low income households are accessing sufficient energy services. Older people and parents of young children were particularly likely to place a priority on maintaining a warm, dry home due to knowledge of the association between indoor temperature and negative health outcomes. Many of these households were, however, either accessing insufficient non-energy services or accruing debt in order to do so.

Some respondents were able to afford sufficient energy services without cutting back on other expenses or accruing debt. Many of these respondents had:

- been the recipient of a retrofit package of insulation and/or installation of an energy efficient space heating appliance
- received assistance from a budgeting advice service
- were living in an extended household where the majority of occupants were in paid employment.

### What factors are contributing to decisions about energy use?

Decisions about household energy use appear to be influenced by a wide variety of factors. Many of these factors are relatively obvious, such as household income, cost of energy, appliances available in the house and the local climate. However, many less obvious factors appear to play a significant role in decisions about energy use, such as:

- financial literacy/budgeting skills
- method of payment for energy bills
- impact of previous 'spikes' in energy costs
- condition, design and location of the house
- tenure
- family type

- number of people in the household (and number of people in paid employment)
- awareness of negative health effects associated with cold, damp houses
- awareness of effects of not heating a house on its condition.

As demonstrated by the case studies throughout the report, households typically have multiple factors contributing to their inability to afford sufficient energy services. This could indicate that any solution will need to be flexible and able to address the potentially unique issues each household faces. Many existing interventions focus on addressing one issue. For example Work and Income recoverable grants can enable a low income household to pay an overdue power bill or purchase a cheap space heating appliance. However, they won't address ongoing issues such as living in a poor condition house, lack of curtains, a landlord unwilling to contribute to installation of insulation, or a lack of knowledge related to how to reduce energy costs while maintaining a healthy home.

Another example is the EECA ENERGYWISE™ subsidy, which subsidises installation of insulation and/or energy efficient heating appliances. While this will be sufficient for many households, others will need additional assistance. For example, one household in Auckland that had recently had their home insulated said that they had not noticed any difference in temperature. This household was not heating their home because they frequently found energy bills difficult to afford as they struggle to manage their income. This indicates that in order for the insulation retrofit to have a significant effect it should be combined with budget advice and education on the importance of maintaining a warm, dry home.

There appears to be significant regional variation in terms of the relative importance of these factors. For example, Auckland fieldwork indicated concern about relatively high rates of overcrowding and living in substandard housing (garages and caravans), as well as both the negative and positive impact of prepayment meters. Respondents in Greymouth and Hokitika, on the other hand, noted the importance of solid fuel burners as a protective factor, and the significant regional issue of poor condition housing.

### **What factors increase the risk of a household living in energy hardship?**

While the interviews didn't include a measure of energy hardship, many respondents were clearly living in energy hardship (unable to afford access to sufficient energy services). The most common response to energy hardship was to maintain insufficient energy services. However, some households in energy hardship still maintain sufficient energy services, but reduce expenditure on other household expenses, or accrue debt to energy providers, banks and/or finance companies.

This research identified a wide range of risk factors which appear to be associated with energy hardship, including factors associated with:

- household income and expenditure:
  - low income households
  - poor financial literacy/budgeting skills
  - living in a region with relatively high energy costs
  - unexpected expenses (funeral, car repairs) or a sudden drop in income (redundancy)
  - drug, alcohol or gambling addiction
- the house and appliances:

- living in a poor condition house, or substandard housing (caravan, garage)
- reliance on inefficient space heating appliances
- living in private rental accommodation, due to landlords acting as barriers to accessing energy efficiency retrofits, or not maintaining the property
- living in a colder region of the country
- the occupants:
  - older people
  - people with disabilities
  - refugees and recent migrants
  - single person households

The findings from this report largely support and are supported by those of the international evidence summarised in the Household Energy Affordability Literature Review (MSD, EECA, 2010).

## 8.0 References

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## Appendix A: Interview guides

### Stakeholder Interviews – Guide for service providers

#### Describe specific population groups at risk of energy hardship

- Are there any population groups in particular that seem to struggle with energy costs?  
[PROMPT]
  - For example particular ethnic groups, elderly or unemployed people  
Groups that you see / that come to you for help more often than others?  
[YES]
  - Who are the groups you see most often?
  - Why do you think they are more at risk?
  - Do [identified group(s)] typically come to you for different problems compared to other groups?  
[NO]
  - Do you see many people for problems related to paying energy costs? Is it a widespread problem?
- Do you feel there are any population groups that you are not seeing? Maybe due to a lack of awareness of your service.  
[PROMPT]
  - Any groups that you would expect to see more of?
  - Any population groups which you don't have much contact with?

#### Provide examples of the problems households have

- What type of assistance do people usually come to you for?  
[PROMPT]
  - Could you give us one or two examples of the type of assistance they ask for or need?
  - A typical scenario of what a client would go through to get assistance  
[PROBE]
  - Can you usually provide the assistance they ask for?
- Do you know if your clients struggling with energy costs also access services and supports from other agencies?

#### Describe factors associated with energy hardship

- Do people usually struggle with energy costs only during winter?  
[NO]
  - Are there any specific issues which lead to people struggling to pay energy costs during the warmer months?
  - Do you see the same people coming back time and time again?
- Do you know what sort of heating people using your service use in their homes?

### **Understand how households get into energy hardship**

- What sorts of things lead to people coming in to ask for your help with energy costs? Any examples?
- Do any of your clients struggling with energy costs come to you for other assistance as well?
  - [YES]
    - What sorts of problems do they come to you with?
- Do people usually try other things before coming to you for help?
- Can you think of any things that prevent people from seeking help with energy costs?

### **Describe the extent of changes in the local energy / energy efficiency sector and**

### **Understand how these changes have influenced behaviour within households in energy hardship**

and

### **Gather perceptions of the effectiveness of available interventions**

- Have there been any changes in this region in terms of energy / heating?
  - [PROBE]
    - for example changes in policy or regulations
      - [YES]
        - What have these changes been?
        - How have people been coping with them?
        - What have these changes meant for people?
          - [IF ANY SPECIFIC INTERVENTIONS MENTIONED]
            - Do you know if many people have accessed the [intervention]?
- Are there many services available for people struggling with energy costs?
  - [PROBE]
    - Are these services sufficient to meet the needs of your clients?
    - Do you think people using these services have been happy with the outcome?
    - Are there any gaps in these services? Any unmet needs?
- Have you noticed an increase in demand for your service?
- Where do you think interventions should be targeted? What needs to be done?
- Is your organisation able to cope with the demand for services?
- How has your organisation coped with changes in the area of energy/heating?

## Household Interview Guide (detail)

**Introduce research** How they use energy in their home, for heating etc.

### **How long have you been in this house?**

Rented?

### **Do you know if the house is insulated at all?**

(probe for details about insulation type / how old)

if yes and recent: did you notice a difference after the insulation went in?

Do you have curtains in all the rooms in the house? (Thermal drapes?)

### **Do you have any issues with damp / moisture in your house?**

How do you dry your clothes? Outside? Inside on a frame / dryer?

### **Is it an easy home to heat?**

#### **How do you usually heat your home?**

What is your main heating source? (clarify: heating source for living area)

Do you use any other heating sources?

Why do you use this heating source?

Are you happy with this as a source of heat?

Would you like to be using another heating source?

What's stopping you from using this heating source?

Do you heat the whole house or room by room?

Do you heat the house all day or only during certain times?

#### **Thinking back, have you ever heated your house any differently?**

(probe: less / more heating, heating source)

#### **Are you usually able to keep your home warm during winter?**

If no, what prevents you from keeping your house warm?

What would have made it easier for you to heat your home during winter?

Have you ever asked for help with making ends meet during winter?

(family, Work and Income, CAB, etc.)

What type of help did you get? Was it useful?

#### **Over the last couple of years have you noticed any change at all in your energy bills?** (if no then skip section)

How have you coped with these changes?

Have you changed how you heat your home?

Have you changed how you use energy for other things in your home?

(lighting, tv, showers etc.)

Have you had to cut back spending in any other areas?

#### **Do you do anything else to try to keep your energy bills low?**

Examples.

Can you think of any other ways in which you could reduce your energy bills which you don't do?

**Have you ever had trouble affording a power bill? Maybe a particularly big bill?**

What would you consider to be a big bill?

How did you handle this?

Did you change the way you use energy as a result of this bill?

How do you pay your power bills?

(direct debit, pre-pay, smooth pay, at the post office as they arrive)

**Have you ever had to go without other things to keep your house warm?**

Examples.

How do you decide what doesn't get paid?

**What would make it easier for you to afford your energy bills?**

Relate back to issues they raised during first part of interview:

- Income
- Energy prices
- Exposure time / increased costs
- Energy efficiency (home / heating appliance)

IF RESPONDENT IS RENTING

**Do you think you could go to your landlord and ask them to insulate your home or install a heating system?**

If no, why not? Have they tried and been turned down, or just assume no?

## Appendix B: Additional information

### ***B1: Approximate space heating appliance running costs***

Heating appliance	Price (c/kWh)
Electricity – heat pump	6.5 - 10.5c
Wood – Wood burner	7 - 13.5c
Electricity – Nightstore / underfloor	9.5 - 19.5c
Wood pellet – Pellet burning fire / central heating	9.5 - 17.5c
Natural gas – Flued heater / central heating	13 - 17.5c
Diesel – Central heating / burner	15 - 18c
LPG – Flued heater / central heating	15.5 - 22.5c
Electricity – panel / column / radiant / convection	17 - 29c
LPG – Unflued heater	27 - 33c

Source: <http://www.consumer.org.nz/reports/heating-options/fuel-prices-compared>  
(Prices based on March 2009 data)

For a discussion of the pros and cons of these and other space heating appliances, see <http://www.cea.co.nz/energy-information/>.

### ***B2: Average appliance electricity consumption per household***

Appliance type	Average kWh (per year)
Computer/games	227
Dishwashers	107
Dryers	119
Electric jug	152
Entertainment	364
Large miscellaneous	73
Lighting (hardwired)	915
Microwave	62
Other climate control	119
Other cooking	52
Range (hardwired)	497
Refrigeration	1119
Small miscellaneous	40
Spa pools	123
Washing machines	63

Source: Isaacs, Camilleri, French, Pollard, Saville-Smith, Fraser, Rossouw & Jowett, 2006, p23

### ***B3: Electricity and natural gas prices 1998-2008\****

<b>Year</b>	<b>Residential natural gas price (\$/GJ)</b>	<b>Residential electricity price (c/kWh)</b>
1998	17.1	13.2
1999	17.2	13.3
2000	18.9	13.3
2001	18.9	14.2
2002	17.5	15.3
2003	23.5	16.4
2004	25.5	18.2
2005	28.2	19.3
2006	28.2	20.6
2007	30.0	22.1
2008	41.0	23.7**

\*: figures above are nominal (unadjusted for inflation)

\*\* : electricity price figures for 2008 are estimated

Source: Ministry of Economic Development (nd), last accessed 8 February 2010, from [http://www.med.govt.nz/templates/StandardSummary\\_21606.aspx](http://www.med.govt.nz/templates/StandardSummary_21606.aspx)

**B4: Approximate\* Regional electricity prices as at 15 November 2009**

Region	Retail charge (c/kWh)**	Line charge (c/kWh)***	Total charge (c/kWh)
Northland	24.44	9.13	33.57
Auckland	23.43	9.89	33.52
Counties/Thames Valley/ Waikato/King Country	23.24	8.80	32.04
Bay of Plenty	25.52	8.96	34.48
East Coast	28.16	11.95	40.11
Hawkes Bay/Wairarapa	24.34	9.65	33.99
Taranaki/Wanganui	23.60	8.85	32.44
Manawatu/Horowhenua	22.56	8.19	30.76
Wellington	22.69	8.50	31.19
Nelson/Marlborough	25.01	8.37	33.38
West Coast	29.76	10.95	40.71
North Canterbury	21.47	6.64	28.11
Christchurch	22.08	7.93	30.01
Mid Canterbury/ South Canterbury	21.93	6.61	28.55
Otago	25.85	10.41	36.26
Dunedin	21.65	6.42	28.07
Southland	23.22	8.93	32.14

- \*: because proportions below 1% were listed as ',1%', combinations of line and energy retailers with a market share of less than one percent in a given region were assigned a weight of 0 for calculating average retail charges
- \*\* : the average retail charge for each region is weighted by the market share of each retailer
- \*\*\*: the average line charge for each region is weighted by the market share of each line company

Source: figures based on data from:  
Ministry of Economic Development (2009), last accessed 8 February 2010, from [http://www.med.govt.nz/templates/MultipageDocumentTOC\\_42334.aspx](http://www.med.govt.nz/templates/MultipageDocumentTOC_42334.aspx)

## ***B5: Accommodation Supplement***

The level of Accommodation Supplement (AS) varies based on the area the household lives in, the benefit (if any) they receive, family type, and the type and amount of accommodation costs they pay. AS is payable when an individual's accommodation costs exceed an 'entry threshold', which is determined by their family type, benefit receipt and whether their costs are for rent/board or mortgage payments. AS is paid at a rate of 70 percent of any costs above this threshold, with a maximum payment rate determined by the above factors and the area an individual lives in.

The AS entitlement structure is too complicated to summarise here. The following table outlines changes in the AS maximum rates.

### **Maximum rates for Accommodation Supplement (\$ per week)**

<b>Family type</b>		<b>Area 1</b>	<b>Area 2</b>	<b>Area 3</b>	<b>Area 4</b>
Pre 2005	Single adult	100	65	45	-
	Married, civil union, de facto relationship (no children) OR Sole parent (1 child)	115	75	55	-
	Married, civil union, de facto relationship (1+ children) OR Sole parent (2+ children)	150	100	75	-
Post 2005	Single adult	145	100	65	45
	Married, civil union, de facto relationship (no children) OR Sole parent (1 child)	160	125	75	55
	Married, civil union, de facto relationship (1+ children) OR Sole parent (2+ children)	225	165	120	75

Source: Ministry of Social Development administrative data (MAP accessed 10 February 2010)

#### Pre 2005:

Area 1: Auckland City, Mangere/Otahuhu, Manukau/Otara, Manurewa, New Lynn, Orewa, Panmure, Papakura, Pukekohe, Royal Oak, Takapuna, West Auckland.

Area 2: Christchurch, Hamilton, Hastings, Lower Hutt, Napier, Nelson, Palmerston North, Paraparaumu, Porirua, Rotorua, Tauranga, Wellington, Upper Hutt.

Area 3: All areas not included in Areas 1-2.

Post 2005:

- Area 1: Northern Auckland, Central Auckland
- Area 2: Wellsford, Warkworth, Snells Beach, Helensville, Waiheke Island, Waiuku, Western Auckland, Southern Auckland, Auckland Region, Pukekohe, Tauranga, Wellington, Nelson, Wakefield, Brightwater, Wanaka, Arrowtown, Queenstown
- Area 3: Northland, Taipa Bay-Mangonui, Kaitaia, Kerikeri, Russell, Paihia, Whangarei, Whitianga, Whangamata, Thames, Tairua, Waihi Beach, Kaitkati Community, Te Puke Community, Matamata, Wakatane, Hamilton, Cambridge, Raglan, Te Awamutu, Rotorua, Taupo, Napier, Hastings, New Plymouth, Feilding, Palmerston North, Kapiti, Porirua, Upper Hutt, Lower Hutt, Lower North Island, Takaka, Motueka, Blenheim, Hamner Springs, Woodend, Rangiora, Christchurch, Darfield, Lincoln, Leeston, Rolleston, Dunedin, Alexandra, Cromwell
- Area 4: All areas not included in Areas 1-3.

***B6: Housing New Zealand Corporation projects***

Housing New Zealand Corporation (HNZC) is undertaking modernisation and energy efficiency projects with implications for their tenants' ability to afford to maintain sufficient energy services.

Modernisation of HNZC homes can include alterations to the layout and facilities of selected HNZC homes as well as improving insulation and ventilation. The energy efficiency retrofit programme is working to ensure all HNZC homes built before 1978 regulation made insulation mandatory are properly insulated. Further energy efficiency upgrades to HNZC homes include:

- insulating hot water cylinders and pipes, ceilings and floors
- adjusting the hot water cylinder thermostat
- fixing draughty windows
- reducing condensation and dampness.

As at May 2008, HNZC had carried out energy efficiency upgrades on 16,500 state houses. Additional funding in the 2008 budget will enable HNZC to retrofit the remaining 21,000 state houses without insulation by 2013.

Source: <http://www.hnzc.co.nz/hnzc/web/housing-improvements-&-development/property-improvement/modernisation-&-energy-efficiency.htm>