

Community EmPOWERment

Research Report Summary



**Research undertaken by
the Institute for Sustainable Futures
on behalf of the Moreland Energy Foundation Ltd**



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Research Disclaimer

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TABLE OF CONTENTS

Abbreviations	1
Introduction	2
Background	2
Research Questions	2
Literature Review	3
Research Design	3
Workshop Design	3
Limitations of the Research	4
Workshop Findings	5
Interview Findings	6
Results of Cent-A-Meter Trial.....	7
1. Research Findings.....	8
1.1 Workshop summaries	8
1.1.1 Northern Migrant Resource Centre, Coburg, Victoria (V1).....	8
1.1.2 The Avenue Neighbourhood House, Blackburn, Victoria (V2)	10
1.1.3 Chadstone Neighbourhood Renewal Project, Chadstone, Victoria (V3)	11
1.1.4 Migrant Information Centre, Mitcham, Victoria (V4)	13
1.1.5 Public workshop, Coburg, Victoria (V5).....	14
1.1.6 Indigenous workshop, Ringwood, Victoria (V6).....	15
1.1.7 Public workshop, Ballarat, Victoria (V7)	17
1.1.8 Arabic-speaking women’s group, Fawkner, Victoria (V8).....	19
1.1.9 Salvation Army workshop, Brunswick, Victoria (V9).....	21
1.1.10 Bondi/Waverley ECHO discussion group, Waverley, NSW (N1).....	23
1.1.11 Harris Community Centre (Chinese speakers), Ultimo, NSW (N2)	24

1.1.12	Harris Community Centre (English speakers), Ultimo, NSW (N3).....	25
1.2	<i>Policy options</i>	28
1.2.1	Voting results.....	28
1.2.2	Better information.....	30
1.2.3	Billing and pricing.....	30
1.2.4	Incentives.....	31
1.2.5	Disclosure.....	32
1.2.6	Regulation.....	32
1.2.7	Community support.....	33
2	<u>Discussion: Responses to Research Questions, Implications and Recommendations</u>	34
2.1	<i>Research Question One</i>	34
2.1.1	The importance of social, cultural and economic factors impacting on electricity use	34
2.1.2	Summary of social, cultural and economic factors	34
2.1.3	The impact of social relations on energy use	36
2.2	<i>Research Question Two</i>	38
2.2.1	Increased and targeted education.....	39
2.2.2	Train-the-trainer.....	40
2.2.3	Metering and feedback.....	40
2.2.4	Billing and pricing.....	41
2.2.5	Incentives and rebates	42
2.2.6	Managing peak demand.....	42
2.3	<i>Research Question Three</i>	43
2.3.1	Concessions for low income and disadvantaged householders.....	44
2.3.2	EasyPay	44
2.3.3	Public housing policy.....	45
2.3.4	Private rental accommodation regulation	45
2.3.5	Support for migrants and refugees.....	46

2.3.6	Second-hand appliances.....	46
2.4	<i>Research Question Four</i>	47
2.5	<i>Research Question Five</i>	47
2.5.1	National Framework for Energy Efficiency	47
2.5.2	National Appliance and Equipment Energy Efficiency Program.....	49
2.5.3	The National Electricity Law	49
2.5.4	State regulatory arrangements.....	49
2.5.5	Tariff structures	51
2.5.6	Delivery of concessions.....	51
2.5.7	Public housing policy.....	51
2.5.8	Housing legislation	51
2.5.9	Integrated Humanitarian Settlement Strategy	52
2.5.10	New programs	52
2.6	<i>Recommendations for further research</i>	53
2.6.1	Research with high consumption households.....	53
2.6.2	Detailed research on specific options.....	54
2.6.3	Interval meter trials.....	54
2.6.4	Concessions research.....	55

LIST OF TABLES

Table 1: List of policy options discussed during the workshops	4
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LIST OF FIGURES

Figure 1: Results of voting on policy options	29
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ABBREVIATIONS

ABS	Australian Bureau of Statistics
AGL	Australian Gas Light Company
AGO	Australian Greenhouse Office
CFL	Compact fluorescent light
CUAC	Consumer Utilities Advocacy Centre
DOH	Department of Housing
EWON	Energy and Water Ombudsman NSW
HWP	<i>Householder Workshop Plan</i>
IHSS	Integrated Humanitarian Settlement Strategy
IPART	Independent Pricing and Regulatory Tribunal of NSW
Institute, the	Institute for Sustainable Futures
MCE	Ministerial Council on Energy
MEFL	Moreland Energy Foundation Ltd
MEPS	Minimum energy performance standards
NAEEEP	National Appliance and Equipment Energy Efficiency Program
NCEAP	National Consumers Electricity Advocacy Panel
NEC	National Electricity Code
NEL	National Electricity Law
NEM	National Electricity Market
NFEE	National Framework for Energy Efficiency
NSW	New South Wales
PIAC	Public Interest Advocacy Centre
RRG	Research Reference Group
SACOSS	South Australian Council of Social Services
SMUD	Sacramento Municipal Utility District

UTS	University of Technology, Sydney
VCOSS	Victorian Council of Social Services
WREAG	Western Region Energy Action Group

INTRODUCTION

This document provides a summary of the final report for the *Community EmPOWERment* research project. A copy of the full report, entitled *Community EmPOWERment Final Research Report*, can be obtained from the Moreland Energy Foundation Ltd website www.mefl.com.au or the Institute for Sustainable Futures.

BACKGROUND

The *Community EmPOWERment* project was established by the Moreland Energy Foundation Limited (MEFL) and the research undertaken by the Institute for Sustainable Futures (the Institute). The full title of the project is *Improving Demand Management Choices for Small Customers in the National Electricity Market* (NEM). The National Consumers Electricity Advocacy Panel (NCEAP) and the Consumer Utilities Advocacy Centre (CUAC) funded the research.

A research working group was established to oversee the development of project, involving Jim Wellsmore from Public Interest Advocacy Centre in NSW and Andrew Nance from SACOSS.

The primary objectives of the research were to investigate the social influences on household electricity consumption, improve understanding of barriers to demand management at the household level and identify promising policy actions to allow householders to better manage their electricity use. A secondary objective was to educate householders on practical actions that they can take to reduce their electricity bills.

RESEARCH QUESTIONS

The research sought to address five specific research questions:

1. What are consumers' expectations about comfort, convenience, security and other concerns that impact upon electricity use? What are the implications for patterns of electricity use and service provision?
2. What are therefore the most effective approaches to products/services to respond to the needs of small consumers to help them understand and manage their overall consumption and peak demand for electricity?
3. What are the particular issues around these products/services for disadvantaged consumers and what can be done to minimise the disadvantage?
4. What are the existing rules and regulations, industry structures, government policies etc that may impede the implementation of effectiveness of these approaches?
5. What changes are required to the National Electricity Code, or jurisdictional laws, regulations and policies so as to remove "roadblocks" that inhibit the development of a demand side response by small consumers?

This Summary Research Report is intended as a resource document for subsequent advocacy work, coordinated by MEFL. That is, the research will be used to recommend and advocate changes to legislation, regulations, codes, policies and regulatory and industry structures.

LITERATURE REVIEW

The project commenced with a literature review which encompassed international and Australian literature that investigated the drivers for household electricity use and strategies for helping householders to manage electricity use. An important finding from the literature review was the growing consensus that effective electricity demand management strategies must be sensitive to the social and cultural context of the individual. In addition, the literature stressed that people demand energy services, such as comfort, cleanliness, convenience and security, rather than energy itself.

RESEARCH DESIGN

The literature review informed the research design. The theoretical framework for the research emphasised the social construction of demand for energy services, the influence of social relations, culture and infrastructure on this demand and the value of community-based approaches in creating the support structures that can help people to reduce their energy use. Consistent with this theoretical framework, the research team adopted participatory action research as the guiding methodological approach. In a participatory action research project, both participants and researchers are actively involved in processes of social change. This approach is group-focused, flexible and responsive to the needs of participants.

Three specific research methods were employed during the research:

- Unstructured interviews with stakeholders from consumer advocacy groups, a regulator (the Essential Services Commission in Victoria), an electricity retailer and an electricity ombudsman (the Energy and Water Ombudsman NSW)
- A series of twelve participatory workshops in New South Wales (NSW) and Victoria, involving 106 householders
- A small-scale trial of a particular product, the Clipsal Cent-A-Meter™, using semi-structured interviews to record participants' experiences.

WORKSHOP DESIGN

The householder workshops were the primary research method employed during the project. The sampling strategy for the workshops was purposive, rather than representative. The intention was to ensure that diverse categories of householder were included in the sample. Thus, the research team sought to establish workshops with the general public, low-income households, people from non-English speaking backgrounds, people from regional areas, elderly householders and Indigenous householders, among others.

To assess these diverse householder groups, the research team used a network approach, collaborating with community organisations, neighbourhood centres and non-government organisations to establish workshops with their clients or existing participants. To best meet the needs of participants, workshops were designed to include an educational session, providing information on ways to reduce energy bills, tailored to the specific concerns raised in each workshop. A second workshop session focused more strongly on policy options that could help participants to better manage their electricity demand.

Policy options were developed in six categories, drawing on the literature review and the knowledge and experience of the research team. Table 1 lists the policy options discussed during the workshops.

LIMITATIONS OF THE RESEARCH

The research findings are subject to some limitations. First, compared to Australian averages, the sample of research participants was skewed towards low-income households, renters and people from non-English speaking backgrounds. This is a consequence of the recruitment strategy and the higher priority placed on energy saving by low-income groups. Second, for some complex or technical policy options, including cost-reflective tariffs, interval metering and remote load control, it is difficult to provide sufficient detail in a brief workshop to support informed discussion. Participants may have misunderstood some of these options. Third, the popularity of policy options involving incentives may be very sensitive to the magnitude of that incentive. Again, time did not allow discussion of different incentive levels and this may influence participant understanding of these options.

Table 1: List of policy options discussed during the workshops

Policy Options for Managing Household Electricity Demand
<i>Better Information</i>
Better information on energy efficient appliances (e.g. printed booklets at the point of sale)
Newsletters with information on demand management products and services
Information in different languages
Information available at social venues
Energy audits (professional, Internet-based or self-administered)
Installation of a Cent-A-Meter
<i>Billing and Pricing</i>
Inclining block tariffs
Interval meters with cost-reflective tariffs
Pre-payment meters (this option was later omitted from the workshops due to equity concerns)
More frequent bills
More retail choice (e.g. retail offerings that include a retrofit)
Disaggregated bills that show the cost of running each appliance
<i>Incentives</i>
Rebates or discounts for energy efficient appliances and products
Penalties for inefficient appliances
Energy bill discounts for allowing remote load control (e.g. interruption of air conditioning)
Rebates or discounts for energy supply options (e.g. solar hot water or photovoltaic cells)
Appliance buy-back schemes
<i>Disclosure</i>
Disclosure of home energy ratings at the point of sale or rent
Extending the Energy Rating (star rating) scheme to more appliances

Advertising the hourly running cost of appliances on Energy Rating labels
Providing benchmarking on bills
Regulation
Mandatory installation of natural gas where available (in new properties)
Minimum energy efficiency standards for rental housing
Minimum energy efficiency standards for new homes and renovations
Extending minimum energy performance standards for appliances to a wider range of appliances
Community Support
Join or start a community support group to pursue demand management
Community fundraising for local greenhouse gas abatement measures

WORKSHOP FINDINGS

Bearing in mind the research limitations discussed above, the main workshop findings are discussed below. Summaries of the matters discussed at each workshop are provided in Section 1.1.

Workshop participants described numerous social and cultural factors influencing their use of, and attitudes to, electricity. Factors that emerged as important for particular cultural groups included:

- The cultural value placed on hospitality by certain groups. The desire to be hospitable influences energy used for cooking, storage of food, heating and cooling.
- The use of heating as a focus for social interaction in some cultures. Some participants expressed a preference for sitting around a source of radiant heat, even if other heating sources were available.
- Participants from diverse cultural groups valued warmth as an indicator of well-being, comfort, security and quality of life, and as a way of maintaining health.
- Some participants, especially migrants, strongly valued new appliances. For them, Australia offered a plethora of white goods, all representing success and security in their new life.
- Alternately, other cultural groups valued cheap, value for money and second hand goods, placing emphasis on the importance of a bargain.
- Participants from countries with little experience of electricity, or market provision of electricity, often had high initial bills due to their lack of knowledge about electricity use in Australia.
- Peak energy demand frequently reflects social and cultural factors, such as the need to get children bathed after work or to cook large meals for guests at the weekend.

The above social and cultural factors can inhibit or facilitate demand management. Other factors were more obviously barriers to demand management, including:

- Poor insulation and design of existing housing stock, and poor efficiency of existing appliances.

- A general lack of knowledge about appliance functioning, existing demand management programs, energy saving behaviours and the electricity market. Participants felt that available information was non-specific and needed to be tailored for their specific situation.
- Competition between the desire to save energy and other values, including water saving, health, safety and quality of life.
- A widespread belief that the shift from public to market provision of electricity had eroded householder rights. Participants believed that electricity is an essential service, not a commodity, and required stronger government regulation and protection.
- Cost was perceived as a major barrier to saving energy, as few participants had funds available to pay the higher initial cost for appliances, insulation and other products that would save money in the long-term.
- Participants felt disempowered in their dealings with landlords and utilities. They suffered from poor quality housing but had little power to force landlords to make necessary improvements. In dealing with utilities, many participants reported unsatisfactory handling of queries and complaints.

In general, these barriers were most severe for disadvantaged households. Disadvantaged households experienced some additional barriers, including the poor quality of public housing and appliances provided through various support schemes. Some participants had clearly experienced hardship as a result of fuel poverty. One positive finding was the value of flexible payment mechanisms, such as EasyPay and Centrepay. These systems were highly valued by participants.

In six of the twelve workshops, participants were allocated two votes and asked to assign these votes to their preferred options from the list in Table 1. The five most popular policy options in voting were:

1. Rebates or discounts for energy efficient products
2. Standards for rental housing
3. Energy standards for new homes, appliances, lighting
4. Bills that separate costs
5. Information in different languages.

Policy options in all categories received some degree of support, either in voting or in workshop discussions.

INTERVIEW FINDINGS

Five research interviews were conducted as part of the project to provide additional data on specific issues and inform the responses to each of the research questions. The interviews were conducted with:

- VCOSS Energy Group
- Essential Services Commission Victoria
- Victorian consumer advocacy groups
- Electricity retailer
- Energy and water ombudsman

RESULTS OF CENT-A-METER TRIAL

A Cent-A-Meter is an electronic display that shows instantaneous electricity use and cost in cents per hour. During the research project, three Cent-A-Meters were installed in participating households and participants were interviewed to record their experiences with using the device. In general, participants found the information interesting, and were surprised by how much or how little particular appliances cost to run. However, they also found that the novelty of the extra information quickly wore off and that information in cents per hour was difficult to relate to quarterly energy bills. None was willing to pay the full cost of having a Cent-A-Meter installed (\$199) and none believed it would encourage them to reduce energy use.

1. RESEARCH FINDINGS

1.1 *Workshop summaries*

The workshop summaries in this section provide details of the date, time and venue of each workshop, the number and demographic profile of participants and a brief summary of the main issues to emerge from the workshop. Issues raised in relation to specific policy options are generally discussed in Section 1.2.

1.1.1 Northern Migrant Resource Centre, Coburg, Victoria (V1)

Date: 12 August 2004
Time: 10 am – 12 noon
Venue: Northern Migrant Resource Centre

Participants:

Seventeen people participated in this workshop, four males and thirteen females. Many of the participants were staff of the Migrant Resource Centre, so they brought both their own householder perspectives and the perspectives of their clients – migrants and refugees. The majority of these staff were also migrants or children of migrants. The workers represented a wide cross section of cultures including Arabic, African, Serbian, Macedonian and Vietnamese.

The group had a wide distribution of incomes – all income categories from under \$200 per week to \$1,200 - \$1,399 per week were represented. Most participants (13) lived in houses, with only two participants each living in townhouses or units. The number of bedrooms ranged from one to five, with three most common. Household sizes were mainly between one and five people, but there was one household of eight people. More than half of the group (10) came from a non-English speaking background.

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- Participants were surprised at the amount of power used by appliances on standby. Also little knowledge of the Energy Rating program.
- Patterns of energy use depend on the type of family. Families with young children use more appliances, teenagers are in their own room using computers, heating and games consoles.
- Participants wondered whether lights use power to turn on, so is it really efficient to turn them off.
- Cheaper appliances encourage people to buy more. ‘More appliances are finding their way into the house’. People in a capitalist society respond to advertising. Once you have used a new appliance (e.g. a microwave) you develop a dependency.
- The first impression on arriving from a developing country is ‘wow, look at all the white goods, dryers, coffee machines!’ Electrical products are seen as a symbol of success – ‘look, we’ve made it, we have a...’ A related issue is that people prefer to buy new appliances as a mark of success – the used appliance market is seen as ‘dirty’, often reflecting prevailing cultural values and the lack of experience with this sector in countries of origin.

- Perception that it costs more to fix an appliance than to buy a new one.
- Clients (i.e. migrants) buy food in bulk so need a big fridge and freezer. There is a ‘shame’ issue. It is ‘shame’ to buy just two apples at the supermarket – must buy a whole box at the market. Anything less is shame – poor hospitality and poor provision for family.
- There were various cultural issues around fridges. Food is at the centre of hospitality and generosity and these values override energy considerations. Clients will cook enough to ensure there are leftovers – culturally, there must be an abundance of food. Cultural issues also included the location of the fridge, which could not be in a laundry (due to this being a ‘dirty’ place) despite this being a cooler location.
- There was evident competition between health values and energy-saving values, e.g. the idea of leaving food to cool before putting it in the fridge was rejected as a health risk, hot water bottles were seen as unhealthy.
- St Vincent de Paul provides refugees with new appliances (fridge, washing machine, TV, vacuum cleaner) as part of a humanitarian relief package. These appliances are not selected for energy efficiency.
- Need to use hot water for washing dishes for hygiene reasons and so dishes dry better.
- There are cultural issues around heating, including lack of experience with dressing for the cold, the need to have heating up high for hospitality and use of heaters as a focus for social interaction (i.e. social and family groups gather around a heater for interaction with some cultures preferring radiant heat). Many cultures required loose fitting clothing that was not well suited to keeping warm.
- Most people don’t turn anything off when they go away on holidays. People felt uncomfortable with turning off pilot lights on gas hot water systems (might not be able to turn them back on) and found them difficult to access as well.
- Participants were interested in lagging pipes and wanted details of local suppliers.
- Little understanding of bills. In some instances, countries of origin had low or infrequent electricity charges so participants had little understanding of billing and higher prices. Participants felt that the greenhouse emissions graph was there ‘to make you feel guilty’ and ‘most people wouldn’t have a clue about what this graph means’. Their motivation for saving energy is convenience and saving money.
- There was a feeling that owners of rental properties only do the basic things – they wouldn’t do anything to help renters save if it costs money. ‘There should be a requirement that all rental properties have off-peak meters’.
- Policies need to avoid penalising the poor and need to consider the context (e.g. family size, availability of gas).
- There was concern about the utility practice of charging an estimate if they can’t read the meter. Householders have little ability to argue or negotiate if they think the estimate is too high as they have no information to back their case. Power companies are seen as unhelpful and serving their own interests. People with English as a second language have particular difficulties, even with an interpreter. Complaints services do not provide satisfaction.
- The Privacy Act makes it difficult for anyone else to deal with the power company on behalf of a client.
- Popular policy options in this workshop were information in different languages, bills that separate costs, standards for rental housing and rebates/discounts for energy efficient appliances.

1.1.2 The Avenue Neighbourhood House, Blackburn, Victoria (V2)

Date: 13 August 2004
Time: 1.30 pm – 3.30 pm
Venue: The Avenue Neighbourhood House

Participants:

There were five female participants in the Blackburn workshop; two aged 25 – 44 and three aged over 65. All lived in three or four-bedroom houses; four owned their home and one rented. One participant lived alone, three lived in three-person households and one lived in a five-person household. One participant was from a non-English speaking background.

Content:

- Participants had old hot water systems – one was 16 years old, another 18 years old. Old hot water systems are difficult to access – located in the roof. For elderly people, the only option is to employ someone to check the system. The participants were not aware of the issue of valve leakage or of the value of insulating hot water pipes.
- Consensus among participants that low flow showerheads are ‘revolting’; the flow is terrible, particularly in areas with low water pressure. ‘You have to run around to find a drip to stand under’. Also problems with models that can’t be detached for cleaning when spray outlets get blocked.
- Too difficult to adjust thermostats, overflow valves, install water saving appliances without a plumber or electrician.
- Stage of life changes mean people get stuck with big appliances that they don’t need, e.g. large family fridge is too big once children leave, and too expensive to replace before breakdown.
- Fridges are usually in alcoves with poor circulation. Difficult for participants to diagnose problems, e.g. needed an expert to work out that the door was not closing properly. Participants had old fridges, e.g. 16 years old, but still working well. Participants were interested in how to check fridge temperatures, as these vary from the top to the bottom.
- ‘It’s businesses that use the most energy so price increases shouldn’t come back on small users’.
- Air conditioning: ‘People wanting air-conditioning are softies – people survived without it in the past’. It’s easy to forget to turn off air-conditioning. Participants suggested inbuilt timing devices in appliances (e.g. air conditioners) that automatically switched off periodically and then restarted, as a mechanism for energy saving.
- Thermal comfort: Need heating at night when bathing kids, relaxing and in morning for comfort when showering, dressing. Some participants like to have windows open a little at night, especially in bedrooms – fresh air is prioritised over heating efficiency. Most participants were happy to use clothing to stay warm, or even a knee rug, up to a point, but heating is needed beyond that. Being warm is an important luxury that makes you feel safe and secure.
- Modern house designs are very open and hard to heat selectively. In addition, it is difficult to zone with ducted systems, particularly older systems. A participant had been informed by a manufacturer or energy utility that simply closing a room vent does not reduce energy consumption.

- Participants were concerned about fire hazards with electric blankets and had heard that they were not safe for health reasons.
- CFLs: Participants find them a bit dull, not good for reading by and don't light up instantly. Tend to use in stairwells and children's rooms where lower light levels are acceptable. Note that these may have been older CFLs – one was nine years old. CFLs are particularly useful in fixtures that are hard to reach, as they don't have to be changed so often. One participant had tried CFLs but they blew within a few months, so went back to incandescent. In general, most people had tried CFLs some time ago but were not happy with the light quality.
- Participants were cynical about greenhouse graph on bills as it is not a complete picture and puts the focus on the householder when a wider range of methods is needed.
- Mixed views on gas cooking – positive and negative.
- Retailers need to provide equal service to all users, meeting social obligation and equity measures.
- There is a need for cooperation between states and national coordinated standards.
- St Vincent de Paul and the Salvation Army won't take second hand appliances due to litigation risks. Participants felt this was a missed opportunity.
- Participants felt bills would be fairer if there was averaging for household size (that is, average use for household size was related to pricing structure and householders were financially rewarded with lower rates for staying within the average consumption range for their household size).
- There was a sense of insecurity about signing contracts with new electricity providers as there is no written guarantee of how much you will save. Participants were uncomfortable about information provided by retailers and its potential bias.
- Participants generally wanted energy use breakdowns, i.e. more information related to actual cost of energy use in their home in major areas (eg heating, hot water, fridge etc), so they could target reduction strategies effectively.
- Participants felt that energy efficiency measures don't necessarily add to the value of your home and therefore aren't beneficial to people who move frequently.
- There was a general consensus that positive rather than negative messages are needed. 'You are helping' instead of 'You are destroying'. Greenhouse gas chart on bill is a negative message. Better to see what you saved in positive terms.
- Popular policy options were fridge buy-back schemes, Cent-A-Meters, energy ratings for houses and free audits by independent people.

1.1.3 Chadstone Neighbourhood Renewal Project, Chadstone, Victoria (V3)

Date: 24 August 2004
Time: 6 pm – 8 pm
Venue: Chadstone Neighbourhood Renewal Office

Participants:

There were five participants (two males and three females). Three were aged between 25 and 44, one between 45 and 64 and one over 65. Weekly household incomes were low – four participants received between \$400 and \$599 per week and one received between \$200 and \$399 per week. Four participants lived in houses that they owned and one lived in a rented flat. One participant was from a non-English speaking background.

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- Participants were interested in hints on saving energy, whether paying an extra dollar would make energy more sustainable and, in one case, the specific issues and problems associated with living in a concrete house. Concrete houses are common in the Chadstone area and have some particular problems, including lack of insulation and steel-framed windows that act as a heat bridge. Some solutions tried or suggested by participants included planting deciduous trees to provide summer shade and insulating the outside of the house with cladding.
- Participants had tried a range of things to reduce energy use in the kitchen, such as checking the star rating, not putting hot food in the fridge and only using the dishwasher when full. One participant had gone so far as to remove the internal fridge light, as their kitchen was bright enough to see inside.
- There was a feeling that appliances with more stars were often, but not always, more expensive. They were starting to see more four-star fridges on the market.
- The idea of keeping the fridge in the laundry to keep it cooler was a problem because it made it too hard to cook.
- There was uncertainty about defrosting requirements for fridges and whether frost-free fridges use extra energy (e.g. for heating in the sides).
- Most participants had gas heating and one had ducted heating. Participants did not use a lot of cooling. One participant only used a “whirly gig” in the roof. Those with air conditioning only turned it on when it was very hot.
- CFLs: Most people had tried these. Problems are that they don’t provide as much light and can’t be used with dimmers. The up-front cost of a CFL can also be a deterrent, despite their advantages in life-cycle cost. In addition, downlights are fashionable at the moment. One participant suggested writing the date on the globe to see how long they last.
- Hot water: None of the participants had been able to choose their hot water system. Most found that it took ages to get hot water out of their taps. Some had high pressure and were concerned that tap restrictors would make this worse.
- Low flow showerheads: One participant wouldn’t use these because she ‘Enjoys a proper shower’.
- Suggestion to unplug equipment to avoid standby power use is a problem because switches are often not handy, people use powerboards and the video has to be reprogrammed.
- Participants thought Cent-A-Meters were good for awareness raising but they couldn’t see people paying for them and felt that the same functionality should be available in the standard meter. They suggested that this could be mandated in design standards for new homes.

- The participants were cynical about Green Power and whether it actually makes a difference. ‘It’s not like you are really getting different electricity. They just want to get more money out of you’.
- The participants had problems with full retail competition, including how to choose a retailer and feeling harassed by retailers doing door knocking.
- Suggestion to abolish service fees and pay a higher consumption charge as a way to encourage demand management.
- Popular policy options were information on energy efficient appliances, information in different languages, energy audits, bills that separate costs, rebates on energy efficient products, energy ratings for houses at sale or rent, energy standards for new homes and community support groups.

1.1.4 Migrant Information Centre, Mitcham, Victoria (V4)

Date: 25 August 2004

Time: 2.30 pm – 4.30 pm

Venue: Migrant Information Centre (Eastern Melbourne)

Participants:

Two Sudanese women, one male Sudanese interpreter and one female migrant worker attended this workshop. All participants rented their homes, which included houses, townhouses and units. The two Sudanese women lived in large households, with six or seven people.

Content:

- The workshop began with a discussion of experiences with electricity in Sudan. Availability of electricity is erratic, there are frequent interruptions and can be time restrictions (rationing). Electricity is cheap and bills are infrequent (e.g. yearly). There is no electric heating – people are used to gathering around the fire. There is no water heating.
- Upon arrival in Australia, most Sudanese will experience electricity bills for the first time and have their first experience with heating. It takes a lot of time to understand the system. When they arrive, they will just use electricity, especially heating. They will then get high bills (e.g. \$600 to \$800 per quarter for a family of six to eight without ducted heating) and have trouble paying. They have trouble negotiating with the utility company over high bills – an interpreter is available and the household is usually put on Easy Pay. It is not clear whether they modify their behaviour to use less or just get used to paying more.
- The participants had very little knowledge or education about how much electricity different appliances use, the star rating system, off peak metering, power pricing and the electricity system in general.
- Standby power: Participants did not know about this. They felt that little red lights are good – they mean that everything is working OK and the power is on. They did not realise that appliances draw power to run these lights and were keen to educate their kids about this.
- CFLs: Participants felt that these were very expensive (e.g. \$15) and difficult to fit in certain light fittings.
- Heating: The participants identified heating as the biggest user of electricity in their homes. Usual practice is to turn heating up high and wear T-shirts and light clothes inside. Participants would sometimes come inside

and feel that the house is hot, but would remove clothes rather than turn the heater down. They are used to gathering around a fire, and now gather around a radiant heater. Participants reported experiencing arthritis from sitting near the heater, then going outside or to colder parts of the house (temperature change). They said that they sit so close to the heater that their legs get brown from the heat.

- Little was known about drafts, insulation and the use of different heaters for different purposes. There was an impression that the fan on a heater uses a lot of power and should not be used.
- Cooking: The participants were not comfortable with electric stoves and told stories of people refusing rental accommodation because it had electric cooking. A major cooking appliance is an electric flat bread pot, used for hours at a time to make large amounts of flat bread at home. A lot of traditional cooking is done on weekends with guests invited. Dishes like stews and curries take a long time to cook and have many steps. There is no time for this type of cooking during the week. Microwaves are used to warm left overs, but never to cook.
- Need large fridges due to large family and lack of transport to make frequent trips (which means participants must buy a lot on each shopping trip). Participants were used to having a large freezer in Sudan, but don't have room for one here. The participants shared stories about broken seals, inefficient fridges and problems with ice-cream melting and damaging seals.
- Participants were provided with fridges as part of a Department of Immigration package but had no control over the efficiency.
- Participants were unable or unwilling to invest in some changes, such as pipe insulation, as they are in temporary accommodation.
- Due to large household sizes, any high usage power fee would need to take into account household size. The migrant worker reports that this is also a problem for water (Yarra Valley Water) where the base rate is calculated using a low household size.
- Policy options were not discussed at this workshop due to time constraints resulting from interpretation. Participants did support the provision of energy efficient appliances by the Department of Immigration.

1.1.5 Public workshop, Coburg, Victoria (V5)

Date: 25 August 2004

Time: 7 pm – 9 pm

Venue: Moreland Civic Centre

Participants:

There were four participants (one male and three females). Two of the participants were professionally involved in energy policy issues. Three participants were aged between 25 and 44 and one between 45 and 64. Weekly household incomes were between \$200 and \$999. Three participants lived in houses and one in a flat, all with two or three bedrooms. Three participants owned their homes and one rented. Two households had one person, one had two and one had three. One participant was from a non-English speaking background.

Content:

- CFLs: Participants had tried these in the kitchen – found the tone a bit cool for the bedroom. One CFL installed in the kitchen lasted over six years.
- Fridges: One participant had an old fridge (7 or 8 years) that was not working that well but no money to replace it. Fridges are often in a bad spot with no air flow and direct sunshine. One participant had fridge on bricks to increase air flow – cheaper than buying a five-star fridge, which they can't afford.
- Cooling: One participant made sure not to set the thermostat too low to save money. Another doesn't like air conditioning – prefers ceiling fans and cold showers. Participants use awnings for shading on windows.
- Hot water: One participant had day-rate electric hot water in her small flat and turned it off during the times when it was not needed. Another had instantaneous gas, chosen for efficiency. Some participants had tried turning down the hot water system, but mainly to reduce risk of burns.
- When renting, it is hard to make the big changes to reduce electricity use. Can only do basic stuff like closing the blinds at night and not filling the kettle all the way up.
- One participant had removed downlights from the kitchen because it was too bright with white painted walls. Participants also found that halogen lights make the kitchen hot in summer.
- Low-flow showerheads: Sometimes took a while to get used to but fine now. New models are better than the old ones.
- Heating: Participants close doors to contain heat, use fan on gas space heater. One participant with central heating had tried to close vents but found this difficult. Another: 'I live in a flat with electric everything and it's really hard to tackle saving energy, but at least I own it, so I could put a reverse-cycle heater rather than using portable heaters'.
- Insulation: Participant added insulation in some walls when replastered, but found it hard to access all walls. Also added ceiling insulation and found it made an amazing difference. Tried to block fireplace to stop draughts, used curtains and pelmets and installed foil batts under floorboards.
- There was a feeling that more frequent bills would mean more frequent financial crisis. 'I'm a low income resident and it doesn't help me – it's a cash flow problem'.
- It was suggested that appliance advertisements (e.g. in junk mail) should be forced to give the star rating of advertised models.
- Participants were aware of problems with the mandatory disclosure of house energy ratings in the ACT because owners put in pelmets and blinds when the energy rating happens then rip them out before they sell the property.
- The most popular policy options were energy efficiency standards for new homes, appliances and lighting and rebates/discounts for energy efficient products.

1.1.6 Indigenous workshop, Ringwood, Victoria (V6)

Date: 27 August 2004
Time: 11 am – 1 pm
Venue: Maroondah Federation Estate

Participants:

Four adults (two males and two females) and three children attended the workshop. However, only two participants gave consent for reporting of data, so the remaining discussion is based on their input. The two consenting participants were both female, aged between 25 and 44 and of Aboriginal or Torres Strait Islander descent. Household incomes were between \$200 and \$599 per week. Both participants lived in houses, with three or four bedrooms and large household sizes (five and eight people). One participant owned their home and the other was renting. This group was keen to stress that their viewpoints should not be seen as representative of Indigenous people nor reduce ongoing responsibility for government to undertake extensive consultation with Indigenous people.

Content:

- The participants had little knowledge of standby power. They didn't like the suggestion of unplugging appliances because that would mean running around after the kids hassling them to turn things off – this is stressful and affects the enjoyment of these few small luxuries of life.
- Heating: Feeling that the heaters with fans in them use a lot of power and that radiator heaters are expensive to run. One household had convection heaters and a radiator in the bathroom. The other household had ducted reverse cycle air conditioning. Participants tried to cut back on power by turning off heating during the day and when leaving the house. The main heating times are when getting up and in the evening (e.g. bath times).
- One participant was suspicious about using the microwave to cook – only used it to warm or cook vegies. They were concerned about its safety for cooking – ‘does it do something to the meat?’
- Hot water runs out frequently. Participants were interested to know about insulating hot water pipes. They reported that the hot water takes a long time to get to the kitchen sink through a pipe running under the house and that insulation would have to help.
- There was a debate over whether the bath or the shower is more efficient. Participants thought that a bath uses less water and power. The kids get in the shower, play in there, and take a long time. Better to put them all in the bath together and let them play. Participants currently turn up the ducted heating at bath time to keep the kids warm whereas after discussion they felt a bathroom ceiling radiator may be more efficient.
- There was a story about one old bloke who leaves an egg to cook on his hot water pilot light as he goes out in order to save fuel. ‘He reckons he’s pretty clever’.
- Participants had little experience of AAA showerheads but one was open to using one to replace a faulty showerhead in the second shower.
- When Aboriginal people are in Aboriginal Housing Board of Victoria housing (i.e. public housing), the main appliances are supplied (e.g. hot water system, heating and stove). None of these are energy efficient. There is also no incentive to upgrade the home and a strong message of ‘don’t touch it’ – leave the house as you found it.
- It was strongly felt that it should be the responsibility of government (and via them, landlords) to ensure that housing is fitted out with energy efficient appliances and that appliances sold are energy efficient. It should not be the responsibility of people who are already struggling to find out about these things. Also: ‘Government should be responsible to mass produce efficient power’. Aboriginal people would like solar power – they have this in remote areas, communities and outstations. Not available to people on low incomes but would increase Aboriginal peoples’ ‘control over our living standards’.

- Participants suggested having information sessions on energy efficient appliances in the home (run by the Aboriginal Housing Board). Aboriginal people often buy inefficient second hand appliances.
- It was felt that the star rating should have a dollar value attached. People can't translate the kilowatt number into a cost.
- Participants felt that all this information was too much, too messy and too complicated – information overload. Need more of an overview. Too much stress to think about saving \$3 here and there, even though it all adds up. The feeling was, 'who cares, too hard, for just \$3'. People are already stressed enough with other things to worry about (managing bills etc) to bother with saving energy. There is already enough to remember with all the family tasks and deadlines and having to do the kids' reading from school every night.
- For people who are struggling, the only comfort in life is in the home – they want to let the kids be able to watch a DVD and have a warm house to ease the hardship. People need to have the basic comforts of life, and all of these depend on power. The house is the one area of freedom and relaxation – when in the house 'let 'em do what they want'. Don't have any other luxuries. Participants don't want to be on everyone's back about watching the power and turning things off – it's unrealistic for the lifestyle, creates too much pressure and stress and takes the enjoyment out of basic comfort. All that stress puts an emotional toll on the family.
- Aboriginal people have more family and visitors on weekends, let kids stay up late, use more power. Weekends are peak times for Aboriginal people.
- Utility companies treat electricity not as an essential service but as a consumer item, with complicated rules like credit cards, different rates and so on. It is all very confusing, when an essential service should be straightforward.
- People don't know about the concessions they are entitled to. Problem of constantly having to ring up and ask for concession, not applied automatically. People don't know at what times they are eligible for concession (eg. winter only?). Felt that many people missed out on concession entitlements due to lack of information.
- Participants 'freak out' at their bill – it's too much, a heavy burden.
- With Easy Pay, if you exceed the bill target, they just let you keep paying and don't tell you to stop or adjust the payment as they argue you will be in credit for winter/summer when your consumption is higher. They just pocket that money that you could have used at the time.
- Suggestion of a fridge magnet with a few energy saving tips. Also educate kids at school about these things.
- There was no voting on policy options, but there was approval for standards for rental and other housing.

1.1.7 Public workshop, Ballarat, Victoria (V7)

Date: 31 August 2004
Time: 1 pm – 3 pm
Venue: BEST Community Development Centre

Participants:

There were two male participants in this workshop, both from an agency in Geelong that provides services to the elderly (some with dementia) and people with intellectual and physical disabilities. The participants were there mainly as representatives of their clients. Demographic data forms were not completed for this workshop.

Content:

- Started with an anecdote of a client that was suspicious of ‘new’ gas heaters and insisted on using an electric blow heater instead.
- Most of their clients are in rented accommodation – old-fashioned single room flats or bed sits at the cheapest end of the market. They often take un-renovated, sub-standard and run-down units because they are cheaper (\$85-\$90 per week) and as a result unwittingly also rent the worst and most inefficient hot water services and heating appliances (if any).
- Some clients and their carers believe gas heaters to be dangerous (even when they have gas cooking) and the agency tends to help their clients buy column oil-filled electric heaters with thermostat controls. There was some discussion of the safety of gas stoves and a suggestion that halogen cook tops might be more suitable (these are cool to the touch immediately they are turned off).
- One participant questioned whether power companies had any reason to reduce energy use. They have a vested interest in selling more energy.
- Clients spend most of their time in the kitchen/living area and bedroom, which are the same place if it is a bed-sit. They often have second-hand fridges and hot water services are often electric, old and in poor working order.
- Price is by far the biggest influence on their choice of appliances. Many clients buy very cheap goods from the Discount Electrical Centre, a bulk warehouse retailer that sells second-hand appliances from New Zealand and unfamiliar brand names (e.g. Candy). The goods have no warranty or back up servicing, may last a short time and will be thrown away rather than fixed when faulty. Running cost of appliances is not considered.
- Clients do not cut back on use after they get a large bill. They want to pay the full amount, ask the caseworkers to help with payment plans, and to intercede on their behalf with power companies. Most are on some kind of regular payment plan, but do sometimes go under with big bills (i.e. bankrupt). Some clients have lived for years without power after receiving a bill too big to pay and other clients go without heating and spend all day in bed rather than get another large bill.
- Direct debit payments and CentrePay are helpful, but some utilities don’t offer these options. Fortnightly payments linked to benefit payments work well. The participants regularly negotiate with utilities over client bill payments. Often need to invoke ‘life supporting machine’ to keep power supply on after a client defaults. ‘What does a client do if the power is cut off and they have a freezer full of food?’
- The agency has a contact that retrofits free fridges and sells them for cheap second-hand prices. Participants thought new fridges should have auto-defrost, but not the type that works by heating the walls, as that defeats the purpose of saving energy.
- Clients don’t use dishwashers. Some are suspicious of microwaves due to radiation.
- Heating: Most clients have built-in electric radiators or use small cheap electric fan heaters (chosen for cheap purchase price without any comprehension of running costs). Many clients won’t use their heaters as they are the symbol of power use – they will wear many layers of clothing, beanies and three cardigans or

will go to bed with an electric blanket to keep warm. Other clients will run the heater full on all day regardless of cost because they want to have the ‘right’ to keep warm.

- Electric blankets: most clients use them as a primary form of heating, both day and night. Discussed using timers for those who may have safety issues, also suggesting hot-water bottles instead.
- Most housing stock is poorly insulated or not at all, representative of the era in which it was built – some are concrete walls, no insulation, hot in summer, cold and damp in winter, others are only insulated in the roof, not in the walls.
- Lighting: Workers replace globes with CFLs wherever possible. CFLs are excellent for the vision-impaired but clients don’t like the look of standard CFLs. Some of the new CFLs look like the lamps they are used to but give better quality of light.
- Many clients hang out at shopping centres or at the pokies to keep warm and sociable during the day.
- Suggestion that training workers like themselves in energy saving or energy auditing or workshop delivery might work well across all service sectors. These workers would be well placed to pass on information to clients, taking into account context.
- Participants were sceptical about low-flow showerheads. Clients don’t pay water bills so no incentive to save water. Some clients have changed over and then switched back.
- Bills: most clients would appreciate bills that are more frequent. Most access a form of EasyPay (or regular payments in advance). Some then redraw credit at later time and as such, this method has added benefit as a form of saving.
- Bills: most clients wouldn’t know if they had off-peak, nor how to evaluate its advantages (if any).
- No interest in green power or green objectives as cost is the only incentive.
- Landlords should be required to retrofit to minimum standards, on all accounts, not just energy. Unfortunately, the reason clients get cheap housing is because landlords let their properties run down. If standards were met, rents would rise, and this would seem like a worse situation because running costs are not factored into rents. The Tenancy Act is difficult to reinforce for the middle classes, so these clients have no hope.
- The most popular policy options were: disclosure, linked to better information and education; billing incentives; standards for rental properties; Cent-A-Meter with green and red lights to indicate appropriate and inappropriate use of power. There was some interest in pre-payment meters, but participants couldn’t see how it would work in practice, i.e. can’t have a life-support system switch off because you ran out of credit.

1.1.8 Arabic-speaking women’s group, Fawkner, Victoria (V8)

Date: 6 September 2004
Time: Not recorded
Venue: Fawkner Community House

Participants:

This workshop was run at the regular weekly meeting of an Arabic-speaking women's group, organised by Australian Lebanese Welfare. Fifteen women, including the organiser of the group, attended the workshop. About half of the women are Lebanese. Most of the remaining women are from Iraq, specifically the Assyrian/Chaldean community, and speak Arabic as their *second* language.

Content:

- This workshop did not follow the standard HWP. Instead, it was conducted as a general discussion about electricity issues. Four of the women in attendance had heard the facilitator from MEFL speak (in Arabic) last year about energy saving so one focus of the workshop was to discuss any changes the women had made since then.
- CFLs: All the women who had attended the earlier MEFL workshop had installed CFLs in their homes since last year's talk. They were impressed with their long life and had no complaints about the colour (they used white globes rather than warm).
- Standby: The women who attended the earlier MEFL workshop had also all turned off their standby power but couldn't see any difference in their bills.
- One woman complained that there was no noticeable change in her bill, but then went on to describe her son's showering habits: two one-hour showers each day. Participants suggested some ways to stop their kids showering too long, including docking pocket money or having a timer on the shower.
- One woman had installed weather-stripping on all her doors and windows, which she said had kept the house warmer.
- When asked if they had turned down their heaters, one mother said her children were always getting sick and her husband had insisted they spend the money on heating rather than doctor's bills. A lively discussion followed on whether it was making children sicker to overheat the room and send them out into cold weather than to have the heater lower.
- One woman was puzzled as to why her bill was different at different times of the year – she had not realised that the bill was connected to how much energy she used.
- Another woman complained that she did not use much energy and yet she paid the same service fee, which was comparatively high. She felt that if you used more energy you should pay proportionally more service fee – she was not rewarded for being conservative.
- There was some discussion about using CentrePay as a useful way to manage paying bills and perhaps saving at the same time.
- Microwaves were perceived as using a lot of power. Some were suspicious of radiation from these appliances. Some women won't use them; others used them only for defrosting.
- There was discussion about using hot water bottles to heat beds and baby's beds in particular – all the women use them, but only for when they are sick.
- Discussed using timers for heaters, especially in bedrooms. All the women liked the idea but had never been shown how they work. The English instructions are hard to follow. Translation of timer instructions is needed so that they can be used.
- Hot water: There was some confusion about off-peak rates. One woman had a bill with off-peak charges, rang to have them explained and was told her meter didn't read off-peak. She was understandably confused,

felt patronised and made to feel stupid. Most women had not heard of off-peak, although they had heard that there were better times to use electricity than others. If there were cheaper times to use electricity than others they would make the effort to use power when it was cheapest.

- Appliance star ratings: Participants were generally suspicious of the ratings because they appeared to add cost and were therefore to be avoided.

1.1.9 Salvation Army workshop, Brunswick, Victoria (V9)

Date: 8 September 2004
Time: 2 pm – 4 pm
Venue: Salvation Army, Brunswick

Participants:

There were nine participants in this workshop, six males and three females. Two toddlers were also present. Three were aged 15 to 24, three were aged 25 to 44, two were aged 45 to 64 and one was aged over 65. Participants were from low-income households, all receiving less than \$399 per week. Participants lived in rented townhouses or flats, typically with two bedrooms, in households of one, two or three people. Four participants had disabilities and two were carers of people with disabilities. Two participants were from a non-English speaking background and three were of Aboriginal or Torres Strait Islander descent.

Content:

- CFLs: Participants thought that energy saving lights were good – they cost more but they save dollars. ‘They last heaps longer’. Participants had CFLs that had lasted for three to five years. There were some concerns about CFLs being too strong or bright for baby’s/toddler’s eyes. Participants were not aware that CFLs come in a range of strengths.
- Participants had good knowledge of standby power. One participant turns everything off, but can’t with the VCR, because you lose the programming and it takes half an hour to set it up again.
- One participant had a bill of \$130 for three months, not including gas. Another said ‘mine are heaps bigger than that – I hate being cold though’. ‘I can’t stand being cold – that’s why my bill is so high’. This participant lived in a home with floorboards everywhere that gets cold and was concerned about the baby catching a cold so has to leave the heating on all night and ‘wear heaps of clothes’.
- Participants discussed health concerns with hot water bottles and electric blankets. ‘They say you shouldn’t use a hot water bottle with the baby’ because it’s scalding, too hot. Electric blankets are ‘no good for some people’ because of health and safety issues.
- In public housing, people often move in and find curtains have been taken by previous tenants so there is no insulation for the windows and the house is cold. There is an issue of who should pay for these – the tenants can’t afford to. There are also big gaps under doors – ‘already put on that draught tape around doors but still big gaps’. ‘It’s an old house and the draught comes straight under’.
- Participants were generally happy about putting on more clothes to stay warm. Some didn’t have heating and just jumped into bed with lots of clothes on. One said, ‘I just get used to being cold’.
- Most participants in public housing had gas wall heaters.

- On saving on bills: '\$30 a year sounds like nothing but if you add up all the little bits it really counts. I did a study at school and it does add up'. The participant thought that you need more pamphlets for 'normal people' with information on ways to save.
- Appliances: One participant had a fridge that freezes everything up. There was a discussion about how to buy appliances at the Op Shop (Brotherhood of St Lawrence). One participant bought a colour TV for \$40 – 'good stuff and cheap – maybe have a little problem like the TV makes a squeal noise but still works'. One participant also recommended Cash Converters and had bought a four-year old fridge there that still had a star rating sticker. Participants 'can't afford new stuff'.
- Cooking: Family with toddler used an electric frying pan a lot. A single older man uses the microwave a lot.
- Experiences with public housing: 'In the flats, you get one bill for everything and you can have showers as long as you want!' There was a general consensus that the landlord should fix stuff, not the resident. Participants felt that public housing was better than private landlords for maintenance and responsiveness.
- AAA showerheads: Most participants had not seen these. One said, 'Oh yeah, seen them, they really hurt your skin'.
- Laundry: Some participants had tried washing in cold water, but most use warm water. One young father found that the 'NapiSan doesn't dissolve properly, goes clumpy' in cold water. Most participants hang their clothes out to dry rather than using a dryer. Discussion about how hot water not hot enough to kill germs and suggestion that hot taps should be made obsolete on washing machines.
- Laundry: some participants had no laundry and used laundromats. Water appeared to be permanently warm for washing with no option to select cold. Cost single man around \$5.00/wk for washing and drying.
- Bills: Most participants felt that bills don't make sense, but they 'just look at the money and try and figure out how to pay it'. They also felt an enormous sense of powerlessness in judging or arguing about appropriateness of bill: 'What can you do? Just have to pay it'. 'Can't do nothing'. 'Not like a telephone bill that you can look at and say, no, I never called that number – you can see what you've spent on a phone bill. Can't say nothing with electricity bill'.
- Greenhouse graph: 'Yeah, that ozone or greenhouse stuff innit? Pollution, yeah pollution. Nah, I don't care about pollution – just the money – yeah, the money. Can't do much about it. They should look at other options for power, not us'.
- Participants felt they should have cheaper power and the government should give vouchers or something. This led to a discussion about the government concession on bills. Participants were not clear whether it was included on their bill or not and suspicious that the concession had not in fact been automatically deducted as claimed by utility provider. They would prefer a voucher that they could spend on electricity any time when you didn't have the money. This would let you choose the best time to get the reduction according to when you need it. General discussion that participants didn't trust the government to give them the concession.
- Full retail competition: Participants were suspicious of the deals on offer and felt that the utilities were 'dodgy', offering 'cheaper energy but much bigger [service] charges'. People didn't want to be locked in for three years – 'what happens in that three years?'
- Most participants were on EasyPay and were generally happy with the fortnightly payments so that they don't end up with a big bill. In this way, they had confidence they could spend the money left over without having to withhold some for bills. There was no sense that EasyPay encourages reductions in energy consumption – it is primarily a way of managing finances. Participants were uncertain about what happens

when you get in credit with EasyPay. Some participants had problems paying at the Post Office and finding that it takes a few days to go through. This had made their payments late and they were threatened with disconnection as a result. Participants felt this was unfair as it was the processing rather than their tardiness that had made them late – the utility companies should factor in the processing time and set payment dates in line with this.

- There was no voting on policy options but some general discussion. Participants were enthusiastic about rebates for efficient appliances and getting landlords to fix up existing housing stock. Some felt that there should be a single price for electricity and that electricity bills should break down costs according to appliances.
- Participants felt that electricity is an essential service and should be cheaper but it's moved away from that to become like a business. Felt that the government does not do enough for the needy in Australia.

1.1.10 Bondi/Waverley ECHO discussion group, Waverley, NSW (N1)

Date: 30 August 2004
Time: 10.30 am – 12 noon
Venue: Waverley Bowling Club

Participants:

There were 15 participants in this workshop, 6 males and 9 females. The participants included members of a regular weekly discussion group and organisers from the ECHO Neighbourhood Centre. All of the discussion group members are aged over 55, have physical disabilities and live in the Waverley and Randwick municipalities. Due to the shortened format for this workshop, the participants did not complete demographic data forms and there was no voting on policy options.

Content:

- Some participants had been visited by electricity companies offering to save them money if they changed electricity companies. They were unsure how to decide and lacked information about what this means for them.
- One participant had bought a refrigerator (approximately 20 years ago) and been shocked to find that his electricity use had increased dramatically – he questioned why he had not been given information on usage rates when choosing the fridge.
- One person never uses the hot water for clothes washing, but still gets a bill that is larger than her neighbour. She doesn't understand why this is.
- **Lighting:** Participants were unsure about how to save energy with light bulbs – 'should we turn them off if it's just for a short time, or does it use more energy to turn them on again?' Participants wanted to know whether a clear globe uses more energy than a pearl one. Participants made use of a free CFL provided by the utility company and another noted that the local government had visited and fitted fluorescent lights free of charge.
- Participants thought that the star rating system was good when buying new appliances, but how do we know how much energy our existing appliances use?

- Cooking: Participants had heard that copper-bottomed saucepans save energy and wanted to know if this was true.
- Participants had tried several ways of reducing energy bills in the kitchen, including using the microwave rather than the oven where possible, installing fluorescent tube lighting and installing the free CFL provided by Energy Australia. One participant mentioned a program where Waverley Council came and fitted CFLs and other energy-saving appliances free of charge.
- There was a general discussion about the value of having north-facing windows. One participant said that she didn't need to use heating in winter because of her north-facing windows. She found that a rug was sufficient.
- Many participants had portable electric heaters and most had electric hot water systems.
- There was a general discussion about the energy consumption of quartz halogen lights and bathroom heat lamps.
- Hot water: Some participants had recently replaced their hot water system when the old one broke down. It was noted that when this happens you are likely to just replace it quickly, not take the time to shop around for a more efficient one. The participants had basically just rung the company named on their old hot water system and asked them to recommend and install a new system. They did not ask for information on energy efficiency and were not offered any.
- Policy options were not discussed at this workshop due to time constraints.

1.1.11 Harris Community Centre (Chinese speakers), Ultimo, NSW (N2)

Date: 31 August 2004

Time: 10.30 am – 12.30 pm

Venue: Harris Community Centre

Participants:

This workshop had 19 participants, 6 male and 13 female. All participants were from a Chinese-speaking background and many were members of a regular English class held at the Harris Community Centre. A staff member from the Harris Community Centre translated the workshop. Given the time required for translation and the difficulties most of the participants had reading English, demographic data forms were not completed for this workshop and there was no voting on policy options.

Content:

- Participants wanted to know if it is better to turn things (like lights) on and off if it's just for a short time, or do they use more energy to start up again?
- Cooking: Some cultural differences were evident in the appliances used for cooking. Participants made significant use of rice cookers and thermal pots. Thermal pots are very efficient and especially good for Chinese dishes, like soups and stews. The inner pot is heated on the stove for about 20 minutes then put inside an outer pot designed like a vacuum flask to retain heat. The food will continue cooking without additional energy input for several hours.

- Fridge: Participants wanted to know whether the fridge is always on, or does it turn on and off? They also wanted to know whether it costs more to turn the fridge temperature down colder.
- There was little general knowledge about energy use. Participants wanted to know whether a power point uses energy when it is switched on with nothing plugged in, or only if something is plugged in. They were not sure how to understand meters and whether there are different meters for gas and electricity. They also wanted to know whether rangehoods use much energy.
- Some participants had tried some small things to save energy, such as switching things off when they are not being used and thinking about what they wanted from the fridge before opening it so that they don't have the door open for too long.
- There was a general discussion about the size of electricity bills. Quarterly electricity bills were compared - they ranged from \$41 (after the concession discount) to \$276. Some of the reasons for differences were discussed, including different household sizes, access to natural gas and different appliances.
- Most participants used electric heating. They wanted to know which type of heater is best and whether gas or electricity is better for heating and cooking.
- CFLs: Participants were unsure whether energy saving light bulbs gave the same brightness. They had little knowledge about how long CFLs last and how much they cost. They were concerned that they give off a 'weird blue light'. Participants wanted to know if they could save energy using light dimmers and whether a lower wattage light bulb uses less energy.
- Participants in apartments were not sure where their hot water system was located and how they would turn it off if they went on holidays.
- Many of the participants reported washing in cold water, but some felt that cold water doesn't get clothes clean enough. They wanted to know if filling the washer with more water reduces energy consumption and whether clothes dryers use a lot of energy.
- One participant wanted to know if they could get their electricity deposit back when they move house.
- Another participant wanted to know what a transformer is and whether it saves energy.
- In general, most of the participants had very little basic knowledge of energy and ways to save energy. Consequently, most of the session was spent on education.

1.1.12 Harris Community Centre (English speakers), Ultimo, NSW (N3)

Date: 31 August 2004

Time: 1.30 pm – 3.30 pm

Venue: Harris Community Centre

Participants:

This workshop had ten participants, two males and eight females. More than half were aged over 65 and most of the remainder were aged between 45 and 64. More than half the participants had a weekly household income of less than \$200. However, most other income brackets were represented, including one participant with a household income of over \$1,400 per week. Most participants lived alone, in rented one-bedroom flats or units

(mainly public housing). However, there were also members of three larger households with three or four people. Two participants had disabilities and three were from a non-English speaking background.

Content:

- One participant had a small hot water system in her flat and once the hot water runs out the system has to start all over again to reheat the water, which is not very efficient – this is frustrating for her when she is trying to save money on her bills.
- Another participant had tried AAA-rated showerheads and found that they don't give as good a shower so he ends up spending longer in there – he feels that maybe this defeats the purpose?
- Participants had tried a few things to save on their electricity bills, including using a blanket instead of heating. One participant goes around and closes the blinds and curtains before sunset to keep the heat in during the night. Another tries to use the natural weather by opening windows facing north to let the sun's heat in. This participant found they could maintain a fairly stable temperature in their home.
- One participant switches her hot water system off regularly to save money. She has found that, because her tank is so big and the insulation is quite good, the hot water lasts for a couple of days after it is switched off. She turns the tank back on every third day to heat the water back up. This strategy only works because the participant has a large tank and lives alone, so is not using much hot water.
- Participants wanted to know about the characteristics of different light bulbs, whether cordless phones and answering machines use a lot of energy and how much energy clothes washers use. They also wanted to know whether it is worth turning lights off if just for a short time or does it use more energy to start the light up again.
- One participant had a waterbed, which uses a heater to keep the water at a suitable temperature. He realised that this probably used a lot of energy but found the comfort of the waterbed more appealing than any incentive to save energy.
- There was a lot of discussion about problems with the Department of Housing (DOH) and landlords in general. Participants said that the DOH is slow to undertake necessary repairs and that it is difficult to get a response to complaints. Participants had lots of ideas for things that the DOH could do to help them reduce their energy use, including fixing washing machine leaks, sealing draughts and gaps in window and door frames to make heating more efficient and fixing old/poor oven seals so that tenants don't need to turn the oven up so high to cook.
- One participant noted that some rooms are very dark so they always need to have lights on. He suggested that the DOH should install a skylight to increase natural light so they can reduce use of lighting. Others mentioned similar problems with dark rooms without windows, or windows that have not been cleaned for years, so they are very dark. All this means they need to use more lighting, therefore more energy.
- Participants wanted to know whether a hairdryer uses much energy and whether it uses a lot of energy to turn on a small radiant heater for 10 minutes while getting dressed.
- One of the participants was experiencing a financial crisis as a result of an unexpectedly high bill. Normally her quarterly bill is around \$100 but this time it was over \$300 and she was not aware of any changes that could have caused the increase. The participant had poor English and had found the utility company very unresponsive when she rang to investigate the source of the high bill. She had recruited the assistance of a neighbour to speak to the utility on her behalf but had made little progress. There was no evidence of a leaking hot water system and the participant claimed that there had been no change in her use of heating. The facilitator suggested that the participant should contact the Energy and Water Ombudsman of NSW

(EWON), as this is the type of issue that they deal with regularly. However, the participant was clearly reluctant to take that step and seemed concerned about getting another organisation involved.

- Participants had questions about full retail competition. They wanted to know how to decide which energy company is better. They felt that it was difficult to get impartial advice on this issue.
- Participants suggested that DOH should do a bulk deal with one of the energy companies to get tenants a better deal because there are so many of them.
- The most popular policy options at this workshop included better information on energy efficient appliances, more frequent bills, bills that separate costs, standards for rental housing and joining or establishing a community support group.

1.2 Policy options

This section discusses the results of voting on policy options conducted at the workshops and issues that arose in relation to specific options.

1.2.1 Voting results

In six of the twelve workshops, participants were given the opportunity to vote on their preferred policy options from the 27 options outlined in the workshop. Each workshop participant was allocated two votes and asked to mark their two preferred options on the policy option summary sheet (OH15 in the facilitator's pack). Given that voting was only conducted at half of the workshops, the voting results do not provide a definitive statement of the policy preferences of workshop participants. Further, this quantitative data on preferences is not intended to displace the richer qualitative discussions of policy options during the workshops. However, the voting results do give a useful indication of the type of policy options that were viewed favourably.

Although participants were instructed to allocate their votes to single policy options, some participants allocated their vote to one of the six categories listed in Table 1. In these cases, the vote was distributed equally across the options within that category. For example, a vote for *Better Information* was recorded as 0.2 votes each for better information on energy efficient appliances, newsletters, information in different languages, energy audits and Cent-A-Meter installation.

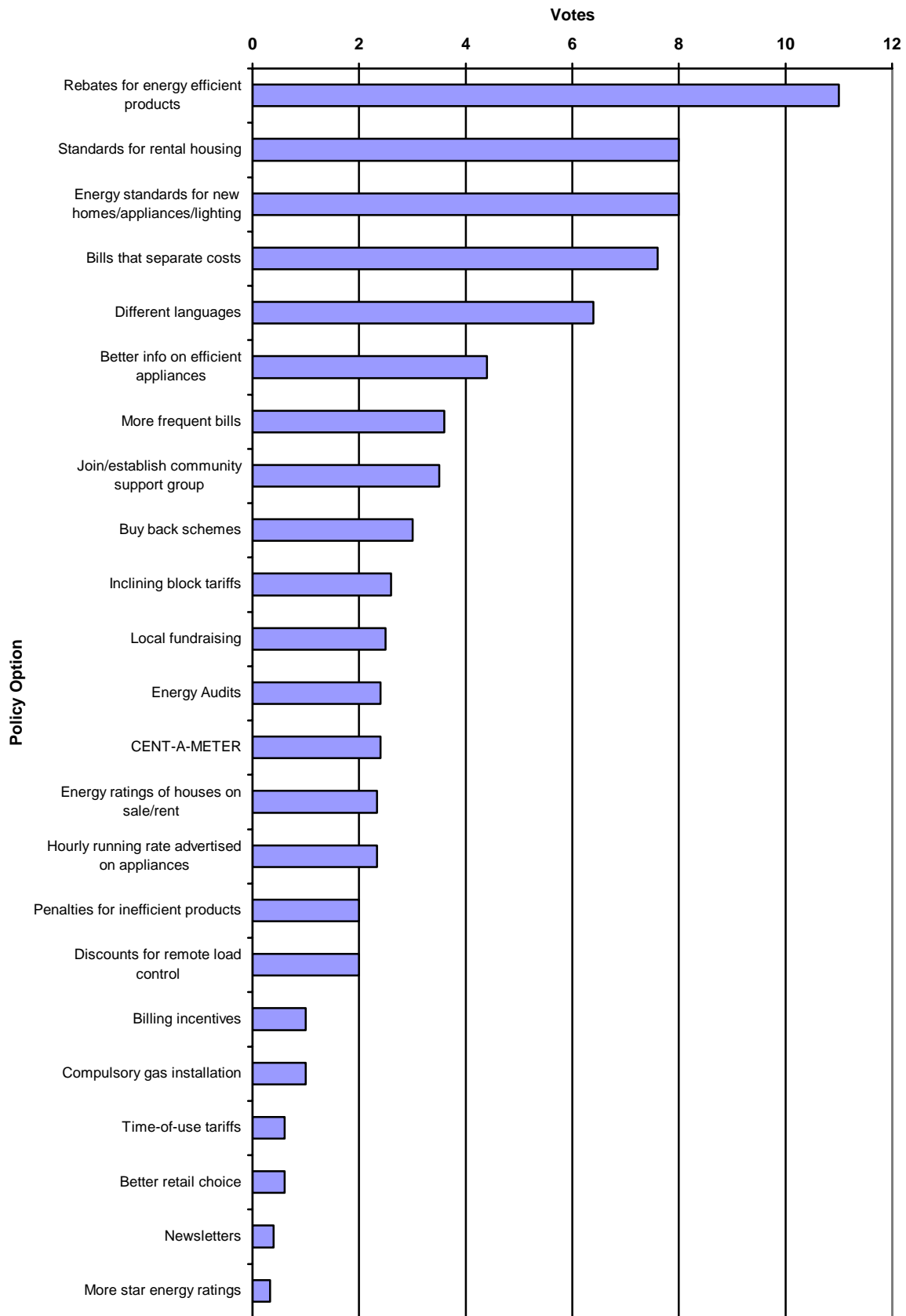
Figure 2 summarises the voting results from the workshops. All options listed on the voting sheet received at least a partial vote during the workshops, although all options from *Compulsory gas installation* down (in **Figure 2**) were only selected as a consequence of a participant voting for the whole category. One option – *Billing incentives* – received a vote although it was not on the voting sheet. All options above *Billing incentives* received at least one full vote.

The top five policy options, all of which received six votes or more, were:

6. Rebates or discounts for energy efficient products (11 votes)
7. Standards for rental housing (8 votes)
8. Energy standards for new homes, appliances, lighting (8 votes)
9. Bills that separate costs (7.6 votes)
10. Information in different languages (6.4 votes).

Most categories of options were well supported, although the disclosure and community support categories received significantly fewer votes than the other categories. The sections below provide additional discussion of issues that arose during the workshops in relation to each of the option categories.

Figure 2: Results of voting on policy options



1.2.2 Better information

Better information was generally well supported by workshop participants; options in this category received an average of 3.2 votes each. The most popular options were information in different languages (6.4 votes) and better information on energy efficient appliances (4.4 votes). The least popular was newsletters, which received 0.4 votes.

The support for information in different languages is unsurprising, given the strong representation of people from non-English speaking backgrounds in the workshops. Of the 44 participants in voting workshops, 16 (36%) were from a non-English speaking background. Workshop participants emphasised the need to take cultural issues into account when developing information, so that energy saving information does not recommend actions that are unacceptable to particular cultures. Participants suggested that ethnic media, including ethnic radio and newspapers, could be a conduit for better information. Another suggestion was to include bill inserts in different languages.

Workshop participants had mixed feelings about the need for better (e.g. printed) information on energy efficient appliances. Some participants were suspicious about information on appliances unless they could be sure it came from the government. One workshop suggested that energy saving tips on television renovator/lifestyle programs would reach the greatest audience. Another suggested developing energy efficient display homes so that people could see energy efficient appliances demonstrated.

There were no full votes for newsletters – some participants felt that people will throw out anything more than one page without reading it. These participants suggested that information works best when provided person-to-person or in groups.

Energy audits received little outright support, although some participants believed that free audits by experts from electricity retailers would be good. There was some evident demand for power meters that householders can use to test the energy use and cost of single appliances. The Cool Communities program in South Australia has made these meters available in self-audit kits available from the local library.

Section 5.7 in the full report discusses Cent-A-Meter trial results in detail.

1.2.3 Billing and pricing

Billing and pricing options were not as well supported as better information, incentives and regulation, but still received an average of 3 votes each.¹ The most popular options were bills that separate costs (7.6 votes) and more frequent bills (3.6 votes). The least popular were interval meters with cost-reflective tariffs (0.6 votes) and more retail choice (0.6 votes).

Many of the workshop participants, particularly those that had unusually high bills, felt that it would be useful to receive a bill that separated total costs out according to different appliances. Participants felt that this would let them track down the source of high bills and prioritise energy saving actions according to the potential cost savings.

The possibility of more frequent bills elicited mixed reactions from participants. Of the participants that completed a demographic data form, 70% received their bills quarterly, 13% received their bill every two months and 7% received their bill monthly. There was concern in some workshops that more frequent billing

¹ Note that the option to install pre-payment meters has been excluded from the analysis as this option was excluded from the voting after workshop V3, in response to the concerns of social advocacy groups. Installation of pre-payment meters did not receive any votes in the three workshops in which it was considered.

would just equate to more frequent financial crisis and threats of disconnection. Other workshops felt that more frequent bills allowed people to budget better. In particular, some of the workshops involving recently arrived migrants or their advocates felt that more frequent bills would help those who have little experience with electricity bills to adjust.

There was discussion in several workshops about EasyPay and Centrepay options for bill payment. EasyPay is a direct debit option that can be set up with regular weekly, fortnightly or monthly payments to spread the cost of a bill out over a year. Centrepay is available to people that receive certain Centrelink payments. A regular amount is deducted from the Centrelink payment to cover bill payments. Participants were generally supportive of these payment schemes.

Participants generally thought that inclining block tariffs were fine in theory but had concerns about the impact on families and other large households. Several participants suggested that these tariffs would need to be implemented in such a way as to protect families and only penalise the wealthy.

There was little support for interval meters with cost-reflective tariffs, although it should be noted that this is a complex policy option that was difficult to summarise in the time available. Participants may have avoided this option because they found it difficult to understand. Some participants commented that it penalised people who have no choice but to use power at peak times, such as people living in cheap, poorly designed housing who need to use air-conditioning.

Similarly, the 'better retail choice' option was imprecise in its description and therefore difficult for participants to understand in a workshop format. Participants were generally suspicious of electricity retailers and uncertain about the offers available under full retail competition. Nevertheless, one workshop did suggest that the Department of Housing enter into a bulk electricity contract on behalf of its tenants.

As noted previously, pre-payment meters were removed from the workshop materials due to concerns about their social impact, including the higher cost and higher rates of disconnection than regular quarterly billing. Nevertheless, pre-payment meters were discussed in several of the early workshops. One of these workshops liked the idea of being able to set your own limit on what you can afford and being notified when you approach that limit. However, it should be noted that EasyPay payment systems, discussed above, essentially provide the same function without the social impact of pre-payment meters. The only other workshop to devote much discussion to pre-payment meters had concerns about how they would work in practice, for example with people on life-support systems who need constant power.

1.2.4 Incentives

Incentives were popular in the workshops. Options in this category received an average of 4.75 votes each and the option that received the most votes – rebates for energy efficient products – was included in this category. Implementation of appliance buy back schemes was the next most popular choice in this category, with three votes. Penalties for inefficient appliances and discounts for remote load control received two votes each.

The workshops were not designed to elicit responses from participants on the level of rebate or incentive that would be sufficient to encourage behavioural change. This is an important limitation of the research and an appropriate topic for future research. While people may generally welcome the idea of rebates and incentives, it may not be cost-effective to offer an incentive of the magnitude they desire. Some participants raised the example of the solar hot water rebate, which is not big enough to encourage people to select that option compared to, for example, an instantaneous gas system.

While workshop participants generally approved of incentives, they generally disapproved of the opposite option – implementation of penalties for inefficient appliances.

The idea of energy bill discounts for remote load control was of interest to participants. However, there was some suspicion about outside intervention in the home. Participants also felt that householders would need to have a very good understanding of the process so that they didn't think their appliance was broken. Further, some participants were more interested in having a positive environmental impact than in reducing peak demand and felt that this option was of more interest to utilities. Otherwise, participants were receptive to the idea, although few voted for it.

The participants who voted for appliance buy-back schemes wanted to see these schemes broadened to include rebates for changing 'life-stages'. For example, when children move out of home and the large family fridge becomes too big, they felt that there should be rebates for moving to a smaller fridge.

Some participants raised the idea of billing incentives, such as a discount for early payment, as a preferable approach to the current system of penalties and disconnection.

1.2.5 Disclosure

In terms of average votes per option, disclosure was the least popular category of options, with 1.7 votes per option. Disclosure of home energy ratings at the point of sale or rent and advertisement of the hourly running cost on appliances (in addition to the star rating) each received 2.7 votes. The option of expanding the appliance Energy Rating (star rating) scheme only received one third of a vote. However, these suggestions received favourable discussion in several workshops despite their poor performance in voting.

One option discussed during the workshops but inadvertently omitted from the voting sheet was benchmarking on bills. Several workshops liked this idea, particularly when moving to a new house where there is no previous bill or bill from the same time last year to benchmark against. However, both this option and the option of advertising hourly running rates on appliances have some practical implementation barriers due to variations in household characteristics and tariff structures.

One workshop raised the idea of requiring appliance retailers to show the star rating of appliances in advertisements, including print advertising and junk mail.

1.2.6 Regulation

In terms of votes per option, regulation was the most popular category, with each option receiving 5.7 votes on average. The two most popular options were standards for rental housing (8 votes) and standards for new homes, appliances and lighting (8 votes). The popularity of standards for rental housing is unsurprising given the relatively high proportion of renters participating in the workshops. Although there was general support for this option, some participants were concerned about the impact on cheap rents. They felt that if landlords were forced to improve their properties, then they would pass on the cost by raising rents, leaving low-income households unable to secure accommodation.

Energy efficiency standards for new homes have already been introduced in NSW and Victoria and the workshop participants endorsed these programs. In relation to appliance efficiency standards, some workshop participants specifically identified heaters as an appropriate target for new standards.

There were no full votes for mandatory installation of natural gas where available and this option did not prompt much discussion at most workshops. Where it was discussed, it was supported for new developments only. No participants were strongly against this option.

Participants raised several other possible regulatory changes during the workshops, including changes to the Tenancy Act and planning laws, putting energy auditing in the Energy Retail Code and requiring utilities to adopt least cost planning.

1.2.7 Community support

The two community support options received an average of three votes each. Joining or starting a community support group received 3.5 votes and local fundraising received 2.5 votes. There was a general feeling in many of the workshops that the burden of responding to climate change should not be put on communities but that support should be available for those that do want to take action.

However, there was substantial support for community groups to be resourced to do more with the community, including workshops of the type conducted during this research project and provision of tailored advice in the home or community. If these options had been listed on the voting sheet it is likely, based on the content of discussions, that they would have received greater support than the other options listed under the community support category.

2 DISCUSSION: RESPONSES TO RESEARCH QUESTIONS, IMPLICATIONS AND RECOMMENDATIONS

This section draws on the literature review, regulatory review and research findings to develop responses to each of the five research questions, draw out implications of the research and outline recommendations for policy advocacy. Sections 2.1 to 2.5 draw out findings relevant to each research question in turn. A final section (Section 2.6) summarises recommendations for further research.

2.1 *Research Question One*

What are consumers' expectations about comfort, convenience, security and other concerns that impact upon electricity use? What are the implications for patterns of electricity use and service provision?

2.1.1 **The importance of social, cultural and economic factors impacting on electricity use**

This research confirms the views of Wilhite & Lutzenhiser (1999), that understanding the social and cultural dimensions of energy consumption is of key importance. The householders participating in this study did not easily conform to predetermined typologies in the literature (see for example, Keys Young, 2002; Barr, Gilg & Ford, in press; Dake and Thompson, 1999). Instead, their behaviours, understandings and attitudes were linked to the interplay between their social, cultural and economic contexts. Hence, consumers' expectations around electricity use and their understandings of comfort, convenience, security and other values can be understood as socially and culturally constructed. Consequently, this research endorses the arguments of Wilhite et al (2000) in favour of research that is sensitive to social, cultural and economic contexts and structural factors. Demand management programs that do not take these factors into account are unlikely to result in significant energy reduction by householders in Australia.

2.1.2 **Summary of social, cultural and economic factors**

The main social and cultural factors identified in this research are presented in detail in Section 5.4.1 of the full report. They include behaviours and values around: hospitality (and communal eating); heating and social interaction; comfort, security and quality of life; preferences for new appliances as markers of success; and preference for second hand or cheap appliances linked to values around saving money. These factors reflect the interaction between past experiences, socially established norms and expectations, present living conditions and social contexts. They represent long standing and deeply held convictions and understandings that play out in behaviour. Likewise, social and cultural factors influence peak usage and it would be expected that peaks will differ for different socio-cultural groups.

It was evident from this research that participants would not easily modify strongly embedded socio-cultural behaviour. Participants appeared to extract those strategies from the education component of the workshops that were consistent with, or could be modified to fit with, their social and cultural contexts. Therefore, to maximise potential effectiveness, demand management strategies need to be adapted to socio-cultural context. The main social, cultural and economic factors that emerged during the research are summarised below.

Quality of life

It is worth reiterating the emphasis by many participants on quality of life issues. This notion was variously defined and strongly related to the social and cultural factors identified above. For many participants, especially those identifying as on low incomes and/or disadvantaged, electricity was a key factor in quality of life. In

particular, electricity provides warmth, which participants identified as a fundamental ingredient of quality of life. In many cases, being warm was linked to feelings of comfort and security. In the face of severe hardship, participants expected their homes to provide some small respite in the way of heating and entertainment (TV, VCR). Affordable electricity is fundamental to this. It should be noted that the need for heating to provide a reasonable level of comfort is linked to the poor quality of existing housing stock. Better insulation, orientation and design can drastically reduce heating (and cooling) requirements.

The need to stay warm is at least partially linked to a desire to stay healthy. Elderly participants used heating to manage existing health conditions. Others used heating as a preventative measure to avoid getting sick. Parents, especially, liked to keep the house warm to stop children getting sick. Thus, in some cases, the underlying driver for seeking a comfortable temperature may have been a desire to stay healthy.

Interestingly, the literature suggests that comfort is a key driver of energy use for other groups in Australia and internationally. An ABS (2002) survey found that comfort was the most significant motivator for installing insulation; 84% of respondents identified this as the prime motivator contrasted with only 10% identifying the prime motivator as cost. Shove (2003) and Wilhite et al (2000) emphasise the importance of comfort in the international literature. Clearly, the ways people understand comfort and how it is provided are very important for understanding and reducing electricity use.

The need to maintain an appropriate level of comfort places some constraints on the amount of demand reduction that is possible, particularly in low-income households. However, once comfort needs are met, quality of life can be used to promote demand management. Many demand management options, by improving the design quality of homes and appliances, bring improvements in quality of life as well as reductions in electricity demand. Understanding the importance of quality of life issues will help with the design of information and education campaigns for households outside the low-income category.

The “right” to electricity as an essential service

Linked to the notion of quality of life was the view of electricity as an essential service. Participants believed that the shift from public to market provision of electricity had eroded their rights around electricity. Many found the products offered since the emergence of full retail competition complex and confusing and did not trust the motives of the utilities marketing these products, or the information provided by utilities. The commitment of Australian governments to electricity sector deregulation and National Competition Policy needs to be tempered by a realisation that some small customers do not welcome competition. Further, it is likely that there will always be some small customers that are not profitable for retailers and will therefore require appropriate regulatory protection to guarantee access to electricity service.

Prior experience with electricity

Prior experience with electricity (especially in the case of migrants) was a significant factor impacting on electricity use. Participants who were newly arrived in Australia described little prior experience with electricity, appliances, or billing and no experience with electric heating or water heating. Combined with transition from hot to cold climates, this meant that they were heavy users of electricity and were unaware of the cost implications until the first bill arrived. Even at this point, little support was available to help these participants to change consumption patterns. These participants were amongst the highest users of electricity in the sample. Therefore, it is critical for interventions to identify and link to householders whose prior experiences of electricity are markedly different from their current contexts.

Competing values

Participants in this study held competing values in regard to electricity use. Frequently, actions that would reduce electricity consumption were rejected due to conflict with values in the areas of health, safety or other environmental agendas (e.g. water saving). This situation suggests that a holistic approach to household change, focusing simultaneously on energy and water saving, health and safety, could be beneficial. That is, general

education on sustainable living is likely to appeal more to householders, and to fit better with the way they understand their lives. At the very least, those seeking to educate householders on saving energy need to anticipate and be ready to respond to related environmental, health and safety issues.

Inconvenience of some energy reduction strategies

Some participants articulated the inconvenience or discomfort of some reduction strategies. Most common was the negative evaluation of AAA-rated showerheads, which were perceived by some householders to provide inadequate and uncomfortable showering. These perceptions were often based on bad experiences with earlier models that had turned householders off trying the showerheads again. Most of the householders that had tried newer models were satisfied with the experience. Similarly, while many householders were satisfied with CFLs they had installed, some reported negative experiences. These included dissatisfaction with the brightness or quality of light and, in some cases, rapid failure of the globe (within months instead of years).

All technologies have a learning curve; as experience with a technology grows, costs generally fall and negative aspects of the technology are gradually addressed. However, if participants try a product at an early point in the learning curve and have a negative experience, they are often reluctant to try the product again. The continuing negative perception of AAA-showerheads and CFLs indicates the importance of 'getting products right' before they reach the market and of continuing education as products improve. Of course, some householders will continue to find these products inconvenient or unsatisfactory.

Participants also described a reluctance to turn off stand-by power on VCRs due to the inconvenience of losing channel programming. For some, it was difficult to reset the VCR unassisted. Further, checking appliances for faults was difficult in many cases. For some participants this was due to poor knowledge of appliances (e.g. inability to check seal on fridge), but for others it was the physical location of appliances (such as water heaters in ceilings) that meant householders could not undertake their own maintenance or improvements (e.g. installing pipe insulation).

In many cases, barriers to reducing energy use went beyond inconvenience to become impractical. Housing design acted as a major barrier to change. Participants reported problems with concrete houses (prevalent in some areas), open plan houses, older ducted heating systems that are difficult to zone, peak electric hot water services and old hot water services. For renters, poor housing design and quality were of particular concern. To a significant degree, housing design and appliance quality establish the level of household energy use and constrain the ability of householders to reduce energy consumption or improve comfort through behavioural change. Conversely, retrofits of housing and appliance stock offer great potential for reducing electricity consumption and improving comfort.

Economic factors

Participants in this study identified saving money as a strong motivator for change. Similarly, lack of finances was a key barrier in implementing change. This is consistent with a survey by the AGO (2002), which found that the desire to save money was the primary motivation for demand management among householders. It is unsurprising then that rebates and incentives for energy efficient products achieved the most votes of the policy options considered in the workshops.

2.1.3 The impact of social relations on energy use

Wilhite et al (2000) argue that the network of relationships with 'builders, utilities, estate agents, government regulators, retailers and engineers' shapes energy consumption at the residential level. Wilhite et al (2000) explain that these institutional and social relationships can create opportunities for demand management, but often impose constraints. Whilst it was not a core feature of the research plan, the discursive nature of the workshop format allowed some analysis of the social relations which impact on energy use.

In this study, participants most frequently discussed their social relations with family and friends, landlords (public and private), utility companies and government. Many of these relationships, particularly those with landlords, utilities and government, were characterised as constraints on efforts to reduce electricity use. However, there was some discussion of social relations that facilitated reductions in electricity use or learning about electricity use. In particular, the participants in the Cent-A-Meter trials found the electricians that installed the devices to be helpful and informative.

The social relations likely to have the biggest impact on patterns of electricity use are those with other members of the household or family. Households and families are not homogenous, but comprised of individuals who all use and interact with energy in different ways. Parents in workshops frequently referred to issues with managing electricity use by children and teenagers. These younger family members, particularly teenagers, were characterised as acting largely independently and managing their own appliances (largely computers, TVs, VCRs, DVDs, computer games and portable heating). They were also characterised as having little regard for energy saving and engaging in high consumption habits e.g. long showers, turning up the heating and leaving lights on. Frequently these behaviours occurred behind closed doors (in private bedroom space) and parents felt unable to act or had decided it was too much “hassle” to seek reduction.

Older participants commented on changing life stages and the effect on electricity use. Some participants described how, as their children grew up and moved away, they were left living alone with appliances (especially fridges) designed for larger families. They could not afford to replace these (still working) appliances in favour of more appropriately sized and more efficient ones.

Relations with friends and visiting family impacted on electricity use. Some participants reported wanting to ‘look good’ in front of visitors in terms of the number of white goods they owned. Others identified that their social habits of communal meals and visits led to increased energy costs. Whilst the literature identifies some examples of householders being influenced to reduce energy consumption based on comparison with and support of friends/neighbours, the householders in this study used energy (and increased its use in various ways) as a result of these social relations.

Overwhelmingly, participants felt constrained by their social relations with landlords (public and private) in terms of taking action to reduce electricity consumption. Landlords were perceived to be uncaring about the energy efficiency of their housing stock. Tenants reported poor quality housing. Public tenants reported housing lacking in basic insulating measures, such as drapes and weather stripping on windows and doors. Tenants felt it was left to them to make improvements but either could not do so, due to finance constraints, or were reluctant to do so given the financial benefit accruing to the landlord. Participants strongly felt the need for regulatory reform in this area, as without this the social relation was one of considerable inequity, which inhibited their ability to reduce consumption.

Most participants held a high degree of scepticism about their electricity company. It was felt that the social relation should be one of service by the utility company (consistent with the notion of electricity as an essential service). Instead, deregulation was transforming the social relation to a market relationship in which, according to participants, their rights were diminished. In this transformed social relation, it appeared (to participants) that the utility company had no obligation to provide a socially responsible service and that issues of economic return would always take precedence over social obligations. Consequently, householders felt disempowered. They required electricity, but the process by which they gained and paid for it was unsatisfactory. They felt they had no rights in this system, no information, a lack of transparency and no ability to argue a case where they felt they were being overcharged.

Consistent with the literature (Keys Young 2002), householders felt they were asked to take a disproportionate responsibility for energy reduction, or were the victims of price increases generated by overuse by other players, such as industry or wealthy households. The only positive in the social relation with utilities was the provision of Easy Pay by utility companies; this is a service that directly addresses householder needs. The social relation

with utilities acted as a constraint on householder change, in that they received little information from the utility company and distrusted what they did receive.

Participants expressed a range of social relations with government. For some, government directly provided services, including public housing and funding for humanitarian relief packages. In such cases, it was felt that governments were failing to meet social obligations by failing to provide energy efficient housing or appliances. The householder was left with the burden of high ongoing energy costs due to inefficient housing and appliances.

Participants were also conscious of the regulatory role of government and felt that governments could do much more in this regard, particularly in the area of mandatory standards for rental housing and regulation of energy efficiency in the electrical appliance market. As a result of increased privatisation and competition in the energy and appliance markets (with utility companies also acting as appliance retailers), householders also felt government should have an increased role in the provision of high quality, unbiased information about energy efficiency, appliances and strategies. Householders expressed distrust of energy providers and retailers providing this kind of advice.

Further, participants felt governments should be more active in offering incentives and rebates to assist and encourage uptake of energy efficient products. In general, householders felt they were bearing a disproportionate responsibility for energy reduction in a social relation where government should be leading and resourcing social and environmental reform.

2.2 Research Question Two

What are therefore the most effective approaches to products/services to respond to the needs of small consumers to help them understand and manage their overall consumption and peak demand for electricity?

This research project has generally interpreted the products and services referred to in Research Question 2 as different policy options that might be pursued within the NEM. Widespread testing of actual products and services was not feasible within budget constraints and was not consistent with the advocacy focus of the research. A small-scale trial of a particular product – the Cent-A-Meter – was conducted as part of the research after the opportunity arose to work with AGL on this trial. Some results of this trial are summarised in Section 2.2.3.

For the most part, this section reports on the policy needs and preferences identified by householders participating in the research, drawing also on relevant literature. The literature suggests some caution in equating householder preferences with effectiveness of strategies in terms of actual energy reduction, for two main reasons. First, there is substantial evidence that the values expressed by people in a research setting do not necessarily translate into effective action (Blake 1999). Social and cultural factors, institutional constraints and psychological barriers can all play a part in preventing the translation of expressed values into effective action.

Second, some of the strategies preferred by householders actually increase, rather than decrease, consumption. For example, Oliphant (1999) found that the provision of detailed feedback on electricity use prompted some households to increase electricity consumption, as they discovered how little some appliances cost to run. Participants in the Cent-A-Meter trial reported similar surprise at the low cost of some appliances and planned to use them more in the future.

There are many other factors that can influence effective implementation of strategies preferred by householders. There appears to be little research into the implementation process and the various social, cultural, economic and other factors that impact on successful implementation over time. Longitudinal studies are required to explore the barriers that arise when householders try to implement preferred demand management strategies.

It should also be noted here that research findings relating to summer peak demand were limited for a number of reasons. First, the workshops were conducted during winter and participants were inclined to discuss heating rather than cooling. This meant that discussion of air-conditioning and summer electricity peaks was limited. Second, the penetration of air-conditioning in the research sample was fairly low. Third, the predominance of low-income householders with little discretionary energy use in the research sample meant that there was little opportunity to discuss options for load shifting. Nevertheless, there was some discussion of policy options to manage peak demand and findings are summarised in Section 2.2.6.

The sections below outline the policy approaches that are likely to be most effective in helping small customers to understand and manage their electricity demand, based on the findings of this research project. Policy approaches that primarily assist disadvantaged households are discussed separately, in Section 2.3. However, many of the strategies discussed below will also assist disadvantaged households, and many of the strategies discussed in Section 2.3 will have wider applicability.

2.2.1 Increased and targeted education

Consistent with the literature (e.g. Roy Morgan Research 2002), this research found that knowledge about energy reduction strategies, and the electricity market in general, is poor. Householders generally had little working knowledge of reduction strategies such as turning off lights and standby power, were unaware of advances in energy saving technologies, such as CFLs and AAA-showerheads, and lacked information to guide decisions about appropriate heating, cooling and other appliance options. They did not feel equipped to decide between different retail offerings emerging since the advent of full retail competition.

Knowledge of existing policy programs, such as the Energy Rating scheme for appliances, was also poor in some cases. Few participants realised that the number on the Energy Rating label was the annual consumption and could be used to calculate running costs. Several participants wanted to see actual running costs advertised on the Energy Rating label. In one workshop, there was a perception that the Energy Rating label actually added costs and was therefore to be avoided. These findings suggest the need for greater promotion and explanation of the Energy Rating scheme with targeted audiences. Participants ranked better information on energy efficient appliances at the point of sale as the sixth most popular policy option in voting, emphasising availability of printed information in retail outlets and advertising of running costs on Energy Rating labels.

Overwhelmingly, householders sought context-relevant information, presented in appropriate language. This is consistent with findings in the literature emphasising the importance of tailoring information to specific circumstances and adopting a personalised approach (Darby 1999; Strahan Research 2003b). There was a general perception amongst participants that face-to-face delivery of information was preferred, possibly because this was linked to a high level of customisation and detailed responses to individual contexts and questions. Home visits by energy experts were particularly favoured. Various participants felt that community organisations could be resourced to undertake this role, which is again consistent with findings in the literature (e.g. Boardman & Darby 2000).

Participants appeared to appreciate seeing and handling various pieces of equipment such as pipe lagging, AAA showerheads, CFLs, window sealers and fridge thermometers. In some workshops the ability to actually demonstrate actions by using fridges, heaters etc was valuable, especially for newly arrived migrants who had little previous experience with electricity. Further, participants expressed a desire for information on local suppliers of appliances and equipment.

Some of the literature argues for tailoring of information by market segment (Dake & Thompson 1999; Keys Young 2002; Shipworth 2000). The findings from this research project are more supportive of tailoring information according to social/cultural clusters (following Jaeger et al. 1993). This implies working with community organisations and cultural groups that are already part of the cultural context of participants.

Further, research participants emphasised the need to take cultural issues into account when developing information, so that energy saving information does not recommend actions that are unacceptable to particular cultures. The provision of information in different languages was among one of the most popular strategies amongst participants (ranked fifth), with participants suggesting the use of ethnic media, including ethnic radio and newspapers, as well as bill inserts in different languages.

The research also highlighted the possibility of identifying suitable appliances for different cultural needs. For example, efficient thermal pots were used for cooking by many of the participants in the Chinese-speaking workshop. This culturally specific demand management strategy could be promoted more widely. There may be other opportunities for the exchange of strategies across diverse groups.

2.2.2 Train-the-trainer

Some workshops raised the idea of training community agencies and their workers to deliver energy efficiency education and audits. Suggestions on delivery were varied including: in-home demonstrations and discussions; via regular worker contact with clients; and by using a similar workshop model to that offered in this project. The use of community networks for education and provision of home energy audits is also identified as an effective strategy in the literature (Boardman & Darby 2000; Nance 2004). Two of the workshops in this research project functioned with the secondary aim of skilling support workers in community agencies to better advise and educate clients.

MEFL has some experience with training programs of this type, having previously trained Home Maintenance workers at Moreland City Council, who do maintenance work for disadvantaged and elderly residents, to do a basic energy audit and make retrofits. MEFL also trains volunteer to do energy audits for their friends and families. However, a comprehensive train-the-trainer strategy would target a wider range of community workers and would require significant funding.

Given the existence of competing values in household management and decision-making, discussed in Section 2.1.2, a train-the-trainer program would do well to focus more broadly than on energy efficiency alone. Community workers who have regular contact with householders could be trained in strategies for sustainable living, as part of a broader educational campaign that integrates energy, greenhouse, water, waste, transport and health issues.

2.2.3 Metering and feedback

In general, participants welcomed the idea of instantaneous or rapid feedback on their daily electricity use. This is consistent with the literature, which found high levels of customer satisfaction with rapid feedback systems such as the Internet-based Energy Tracker system (previously called Personal Energy Management) employed by Puget Sound Energy (Gullekson 2002), the computer-based feedback trialled by Brandon & Lewis (1999) and various forms of direct in-home feedback (Darby 2001).

To provide feedback on daily electricity use, it is necessary to install an interval meter. The Essential Services Commission in Victoria has already decided to pursue a compulsory rollout of interval meters for all electricity customers. The MCE recently decided that all jurisdictions should complete an assessment of the costs and benefits of a similar rollout by 2007. The research findings generally support the rollout of interval meters to residential customers as a means of providing feedback on electricity use.

However, the research findings also indicate that interactive, user-directed feedback is likely to be most effective in meeting the needs of householders. That is, rollout of interval meters needs to be supported by provision of accessible, interactive displays and online tools for householders with Internet access. Wood & Newborough (2003) found that electronic feedback indicators were significantly more likely to encourage reductions in consumption than paper-based information. The research support for rollout of interval meters is therefore

contingent on the provision of appropriate interactive feedback displays, in-house and online. This, in turn, will require meters with remote reading capability.

The research participants welcomed rapid feedback as a way of helping them to reduce their electricity use. However, it should not be assumed that feedback will automatically lead to reductions in energy consumption. For the participants in the Cent-A-Meter trials, the novelty of feedback wore off rapidly. Further, consistent with Oliphant's (1999) findings, the low cost of electricity and consequent low cost of running many appliances meant that some participants planned to increase their use of those appliances as a result of feedback. In addition, many participants reported social or cultural constraints that would prevent them from reducing peak consumption or overall consumption.

The value of feedback to most participants was as a way of testing the impact of particular behaviours or products. It can provide an indication, when a household buys a new appliance or adopts a new behaviour, of the impact on electricity use. Participants were particularly interested in feedback that disaggregates electricity use according to different appliances or end uses. This was the fourth most popular policy option overall, with 7.6 votes. Interval meters do not provide this information. While this type of feedback could potentially be provided through other smart metering technologies, such an approach is likely to be expensive.

A superior approach is to deliver this feedback through energy audits. Professional energy audits provide the most detailed and accurate information to help a householder reduce their energy bills, but are relatively expensive. Self-administered audits are a cheaper alternative, although they will not be suitable for all householders. An example is the Cool Communities program in South Australia, which made plug-in power meters available in self-audit kits that could be borrowed from the local library. Householders can use these power meters to test the electricity consumption of different appliances themselves. This program could be advocated Australia-wide. In addition, community workers trained in energy auditing (see Section 2.2.2) could be equipped with these meters to assist their clients.

Another model, employed by MEFL, captures some of the advantages of professional advice and some of the cost savings of self-administered audits. MEFL runs workshops to teach householders how to use a paper-based audit and retrofit tool. The workshop gives the householders access to professional advice but the householders then conduct the audit themselves. Again, this model could be advocated more widely.

A final point to note is the general unwillingness of householders to pay more than a small amount for the provision of extra information. None of the participants in the Cent-A-Meter trial were willing to cover the cost of installing such a device. Other participants felt that instantaneous feedback on amount and cost of electricity use should be part of the normal functionality of their meter, implying that they expect utilities to cover these costs.

2.2.4 Billing and pricing

In addition to metering, billing is an important way of providing householders with information about their electricity use. The literature links more informative bills to reductions in energy use (Wilhite & Ling 1995). As well as bills that report on the cost of different end uses (see Section 2.2.3), some householders supported more frequent bills. However, most were happy with quarterly bills and the research does not support any change in billing cycles. The research does support payment flexibility.

While participants generally welcomed the type of information and feedback that an interval meter could provide, they were resistant to the idea of cost-reflective tariffs. Discussion during workshops tended to focus on the higher prices during peak times rather than the possibility of lower prices at other times. Most participants, especially low-income participants, did not feel that their consumption during peak periods was discretionary and were dubious about their ability to respond to higher prices at those times by changing their practices.

Some participants felt that cost-reflective tariffs would unfairly penalise those who had no choice but to consume energy at peak times, including families and people in poorly-designed housing. Other participants had poor understanding of existing off-peak tariffs, indicating that the added complexity of many cost-reflective tariff proposals will be difficult for some householders to grasp. If cost-reflective tariffs (with diurnal variation) are implemented, there must be appropriate regulatory control and supporting program (e.g., retrofits for families and low-income households) to prevent regressive social impacts.

It should be noted, once again, that different findings would be expected for householders with a higher proportion of discretionary energy use. These householders would be better placed to shift energy use to take advantage of lower prices during non-peak periods. Further research on the attitudes of high energy users towards cost-reflective tariffs is recommended.

The type of tariff structure that received the most support was an inclining block tariff with a low access to service charge. Some participants wanted to abolish fixed charges entirely and pay a higher consumption charge. Others suggested that the fixed fee should be proportional to usage. Both of these suggestions would provide a stronger price signal to consumers to reduce electricity use. Participants recognised the need to take household size into account when establishing block tariffs.

One interesting suggestion was to relate the size of the cheaper block of electricity use to household size; larger households would have a larger block size. However, this would introduce an additional level of administrative complexity that could be counterproductive and there could be privacy issues with requiring households to reveal their size. An alternative is to offer rebates to particular categories of household (e.g. large families) that exceed the threshold.

2.2.5 Incentives and rebates

Consistent with the literature (e.g. AGO 2003), rebates and incentives for installing energy efficient products, equipment and appliances were very popular with research participants. Participants felt that they should be rewarded for doing the right thing and that the government should provide assistance with the high initial capital costs of some demand management actions to capture the ongoing economic and environmental benefits. The provision of rebates and incentives was the most popular policy option in voting, with 11 votes.

The popularity of rebates and incentives is no great surprise. In a workshop context, when options must be presented rapidly without time for deep discussion of their implications, it is in an individual's self-interest to call for rebates and incentives. The problem is identifying how these rebates and incentives should be funded (i.e. who should pay?), to what level (i.e. how much is enough to encourage adoption and do the benefits outweigh the costs?) and on what basis they should be allocated (i.e. who is eligible?) This research project was not designed to answer these questions. Further research on these issues is a high priority recommendation.

Although it is possible that rebates and incentives were popular because participants were pursuing their own self-interest, it was also evident that participants found it genuinely difficult to afford the high initial cost of demand management options, even when they recognised the lifecycle benefits. Given this situation, funding options that reduce upfront costs by slightly increasing electricity prices are attractive. If implemented appropriately, the increased affordability of demand management will offset the increase in electricity prices, leaving energy bills at much the same levels. Consequently, proposals for Demand Management Funds, funded by a small levy on each unit of electricity sold, are an attractive way of providing the type of rebates and incentives desired by participants.

2.2.6 Managing peak demand

Research Question 2 draws attention to the issue of peak demand, which is of great interest to energy utilities and regulators charged with ensuring a reliable electricity supply. Many families discussed dinnertime and the time of arrival home from work or school as a period of higher energy use. These times are used for bathing

children, making dinner and heating rooms prior to bathing and sleeping. Given the context of these activities, and the social and cultural needs attending them, most participants felt that they could not make a significant reduction in electricity use at these times. Indeed, the research participants overwhelmingly claimed that they used energy at particular times because they had to, or for social and cultural reasons that they were not inclined to change. Few were willing or able to contemplate voluntary reductions in energy use at these times. Further, low income households were already constrained in their energy use and exhibiting rationing behaviour. Low-income households have limited discretionary energy use that they can willingly reduce or shift to other times.

As noted previously, the weighting of the research sample towards low-income households means that these findings are not likely to be representative of the attitude of the wider population towards demand shifting. For households with a higher proportion of discretionary energy use, there should be a wide range of options to shift demand out of peak periods. For example, swimming pool owners can put pumps on timers, dishwasher owners can turn on dishwashers before going to bed and air-conditioner owners can switch off the air-conditioner for periods when prices are higher.

Nevertheless, the research reveals the possibility that cost-reflective tariffs will negatively impact on those households that have few options to shift demand out of peak periods. It also identifies some examples of social and cultural constraints that may limit the effectiveness of cost-reflective tariffs and similar constraints may apply within the wider population. Further research, preferably involving trials of interval meters with dummy cost-reflective tariffs, is recommended to determine whether householders are willing and able to shift their demand out of peak periods in response to price signals. This research should focus particularly on discretionary energy use by households with higher incomes and energy use than were typical among the workshop participants.

Given that the research was conducted during winter, it was difficult to get a strong sense of whether people would be willing to modify their air conditioning behaviour. Some participants were attracted to the concept of remote load control; others were suspicious of this as interference in the home. However, in the context of the popularity of rebates and incentives during the workshops and the apparent success of remote load control programs offered elsewhere (e.g. SMUD), further attention to remote load control is recommended.

2.3 Research Question Three

What are the particular issues around these products/services for disadvantaged consumers and what can be done to minimise the disadvantage?

The key barriers for disadvantaged consumers seeking to understand and manage their electricity use are structural in nature. Models of behaviour categorisation and change (e.g. Barr, Gilg & Ford in press; Dake & Thompson 1999; Keys Young 2002; Shipworth 2000) are not suitable for addressing the needs of this group, where the potential for behavioural change is so structurally constrained. In general, this research confirms the findings and recommendations of the Western Region Energy Action Group (WREAG 2004). This research found that barriers to improving energy efficiency included: poor energy efficiency of public housing; lack of affordability or interest as a tenant to invest in substantial home modifications to increase energy efficiency; and lack of affordability to purchase more expensive energy-efficient appliances. Recommendations from the WREAG report include a focus on:

- Socially responsible tariff structures, implemented as inclining block tariffs
- Improving housing stock through retrofits, simple, low-cost actions and no-interest loans for energy-efficient appliances
- Subsidisation of energy bills for people who must have heating or cooling to prevent serious illness
- Establishment of independent advocacy capacity for energy consumers.

With this in mind, this research suggests that work to support electricity reduction among disadvantaged consumers needs to focus on overcoming structural barriers to energy access and efficiency. Specific strategies against these broad needs are described below. It would be appropriate to implement these strategies as part of an integrated Fuel Poverty Strategy to address the energy needs of low-income households. The Fuel Poverty Strategy is discussed in Section 2.5.10.

2.3.1 Concessions for low income and disadvantaged householders

Concessions are one way that governments recognise the role of electricity as an essential service and attempt to meet social obligations relating to this service. This research found that the area of concessions could be improved in a range of ways.

First, there is evidence that some disadvantaged householders are not adequately supported by financial rebates or concessions to the extent that they either cannot access electricity at all, or are so restricted in its use as to affect their quality of life severely. Expansion of concession schemes may be appropriate to provide further support for disadvantaged households. Additionally, some householders have special health needs that must be managed through heating and cooling. Existing electricity bill concessions for life support equipment could be expanded to cover other health needs that require electricity use.

However, there may be better ways than expansion of concession schemes to provide financial support for low-income households. In particular, providing subsidised retrofits or access to capital to purchase insulation and efficient appliances can permanently reduce energy bills, reducing the need for concessions.

Second, householders in this study had little understanding of how concessions worked, what periods of the year they covered, or how they were applied. Participants reported ongoing problems with receiving bills on which concessions had not been applied or in assuming that the electricity provider automatically applied concessions when they did not. From the evidence provided by householders, it appears that many householders who are eligible for concessions are not receiving them.

Whilst governments fund concessions, it is the utility companies that administer them. As such, utilities need to be involved in promotion of concessions. Householders need to know when concessions are available, at what rate, eligibility requirements, how to obtain them, and if they are required to repeatedly apply for concessions for each bill period. All concessions applied should be clearly stated on each bill so householders can ascertain if they have been applied. Governments should regularly evaluate the uptake of concessions against other data (e.g. health care or ABS data) to ensure concessions are being accessed proportionate with eligibility.

Third, further research is needed to determine whether the provision of concessions in their current form is the most useful method for supporting the access of disadvantaged people to electricity. For example, participants in this research suggested that a concession voucher system may be more appropriate where eligible householders could opt to use concession vouchers (to a predetermined value) at the point in the year when most needed. This would more accurately relate to the actual and changing financial contexts of disadvantaged householders. Further research and policy work is required in this area.

2.3.2 EasyPay

The opportunity to make regular contributions towards bills is already available to most householders via systems such as EasyPay. This research found some evidence that EasyPay may lessen householder motivation to reduce energy consumption. The regular contribution amounts do not vary according to consumption, which means that there are no financial incentives for reducing bills (as payments remain static). Further, bills are less meaningful when they are already paid for, so less attention is given to them (and to any educational inserts). However, the effect of EasyPay payment structures on electricity usage requires further research before conclusive results can be offered.

Despite these issues, EasyPay has a significant place in the management of householder electricity and should be continued. EasyPay structures greatly assist householders to meet their payment commitments and remain eligible for electricity connection. Additionally, householders view these structures positively, and in some cases, this is the only positive view of the utility company that the householder holds. In such cases, EasyPay is a key mechanism in building relationships between the service provider and consumer. These relationships are critical if utility companies are to continue to expand the effectiveness of their role as an educator and change agent in the area of energy efficiency.

Several research participants felt that the availability of EasyPay, and other flexible payment options, should be advertised more widely and actively promoted by utilities. Participants encouraged further attention by utilities to flexible payment options to assist disadvantaged households. Some options suggested included:

- Introduction of incentives for early bill payment instead of penalties for late payment
- Payment matching for households experiencing financial crisis
- Targeting retrofit programs to households experiencing financial difficulties and big bills
- Suspending payment requirements in the lead up to holiday periods (e.g. December).

2.3.3 Public housing policy

A significant proportion of low income and disadvantaged householders reside in public housing supplied by the Department of Housing or Aboriginal Housing Board in each State. According to participants, this housing is often poorly designed from the perspective of energy efficiency (especially heating and cooling requirements), stocked with inefficient appliances and lacking in insulation, including window and door seals and drapes. Consequently, tenants must use high levels of electricity to maintain comfort and operate appliances, incurring high costs.

One of the most popular policy options during the workshops was the establishment of an energy efficiency standard for rental housing; this option was particularly popular with public housing tenants. Government policy in regard to the development and upgrade of public housing needs to prioritise energy efficiency, particularly through the retrofit of existing housing stock. Additionally, rental payments could be structured to reward improvements made by the tenant (such as installation of drapes, window and door frames, AAA showerheads, CFLs etc) or direct cost reimbursements made to tenants. Where public housing also supplies appliances (for example, transient housing), these should meet appropriate energy efficiency standards and not just be selected on the basis of minimum cost.

One workshop raised the idea of the DOH negotiating a bulk electricity supply agreement for its tenants, effectively acting as an energy cooperative to increase tenant purchasing power. The contract put out to tender could potentially include retrofits as well as electricity supply. This idea is worth further investigation.

2.3.4 Private rental accommodation regulation

At present, the Residential Tenancies Acts in Queensland, NSW, Victoria and South Australia offer no regulation in regard to energy efficiency. In the ACT, landlords must advertise any previous energy efficiency rating in the advertisement for lease, but do not need to obtain a new energy efficiency rating. All Acts require landlords to ensure prices they charge for electricity consumption are consistent with utility companies and include concession rebates, but none require landlords to offer housing stock with minimum energy efficiency standards. Nor are landlords significantly rewarded for such expenditure through the taxation system.

Research participants sought the establishment of minimum energy efficiency standards for rental accommodation and requirements for capital improvements to bring housing stock up to these standards. The establishment of such standards is cautiously endorsed. The main reason for caution is the possibility of rent increases that would worsen the overall financial situation of low-income households. It is possible that taxation incentives for landlords could be used to offset the need for rent increases. However, as a first step in moving to energy efficiency standards for rental housing, mandatory disclosure of energy efficiency ratings in lease advertisements should be strongly pursued.

2.3.5 Support for migrants and refugees.

As discussed in the full report, the Integrated Humanitarian Settlement Strategy (IHSS) provides refugees with a range of basic appliances via the Household Formation Support program. This program is largely administered through community organisations that undertake purchasing and provision of appliances and do not have the resources to prioritise energy efficiency. Government guidelines for the program need to require the purchase of appliances that meet a minimum energy efficiency standard. This will likely require allocation of additional resources to the program, however these resources will be recouped, on a whole of society basis, through reduced energy bills for refugees.² The agencies administering this program would benefit greatly from a train-the-trainer program of the type discussed in Section 2.2.2.

Although it was mentioned only once, it is likely that the Commonwealth Government's Emergency Relief program also provides appliances to victims of natural disasters. If this is the case, the Emergency Relief program could also benefit from the changes contemplated above.

Additionally, many refugees and migrants begin life in Australia with little knowledge of electricity markets and appliances. To avoid initial high energy bills, there is a need for on-arrival education about electricity, what it is used for, strategies to reduce consumption and the cost of electricity use. Recently arrived refugees and migrants should be a key priority for immediate and extended education in this regard. To achieve this, government and/or utility companies must allocate funds to community agencies dealing with these groups (including the cost of accessing train-the-trainer programs in energy sustainability).

2.3.6 Second-hand appliances

Low income and disadvantaged householders reported increasing difficulty in accessing cheap second hand goods due to the withdrawal from the market of many charitable organisations. Participants claimed that this withdrawal was a result of the current litigious environment, however this research project has not attempted to confirm this claim by interviewing representatives from charitable organisations. Whatever the reason for the withdrawal from the market, without access to cheap energy efficient alternatives to existing poor quality, old or oversized appliances householders have no choice but to continue use of inefficient appliances. The involvement of charitable organisations in the second-hand appliance market should be supported and protected through appropriate policy and regulatory changes.

In addition, retrofitting programs offer the potential to improve the efficiency of some second-hand appliances, especially fridges. The Phoenix Fridge program, implemented by MEFL, is a good example. Donated fridges are retrofitted to remove CFCs and improve energy efficiency and provided to disadvantaged households. Expansion of such programs is recommended, both to remove inefficient fridges from the appliance stock, and to provide cheap, efficient fridges to low-income households.

² An additional advantage is that bulk purchasing of efficient appliances will help to reduce their cost.

2.4 Research Question Four

What are the existing rules and regulations, industry structures, government policies etc that may impede the implementation or effectiveness of these approaches?

The full report identifies the policies, legislation, rules, regulations and other institutions that potentially impact on the ability of householders to manage their electricity use. Of direct relevance are:

- National energy policy
- The National Framework for Energy Efficiency
- The National Appliance and Equipment Energy Efficiency Program
- The Productivity Commission Inquiry into the Economic and Environmental Potential Offered by Energy Efficiency
- National Electricity Law
- The National Electricity Code
- State regulatory arrangements
- The structure of the deregulated energy sector
- Housing legislation in each State
- The system of electricity concessions
- The Integrated Humanitarian Settlement Strategy.

These institutions can act to impede or facilitate management of electricity use by householders, depending on the context and the specifics of their implementation. Section 2.5 considers some of the ways in which these institutions might be improved to respond to the concerns raised by participants during this research project.

2.5 Research Question Five

What changes are required to the National Electricity Code, or jurisdictional laws, regulations and policies so as to remove “roadblocks” that inhibit the development of a demand side response by small consumers?

The institutions discussed in Section 2.4 do not all act to inhibit the development of a demand side response by small consumers. Most have numerous positive features. Nevertheless, there are always opportunities for improvement. This section draws on the research findings to identify specific opportunities for improvement that might be suitable for advocacy purposes.

2.5.1 National Framework for Energy Efficiency

The NFEE includes three policy packages that are potentially relevant to the findings of this research project. The residential building policy package includes the following measures:

- Nationally consistent minimum energy efficiency design standards for new homes, units and apartments

- Minimum energy efficiency design standards for major renovations
- Mandatory disclosure of the energy performance of homes, units and apartments at the time of sale or lease.

The first two measures will implement one of the most popular policy options from the workshops (ranked equal second in voting) and are strongly endorsed by the research team. Advocacy could focus on ensuring that consistent national standards adopt the best practice standards developed in NSW and Victoria, rather than some lower standard.

The third measure was also discussed during the research. It was generally supported by workshop participants, although few felt strongly enough about it to vote for it as their favourite option. Consumer advocacy groups also supported this measure. Two problems with this option raised during the research include landlords installing equipment to get a high rating then removing it after their rating has been determined and advertising of the rating that was almost too small to be visible. Advocacy could focus on ways to implement mandatory disclosure that avoid these problems. For example, there could be a requirement to have an audit of the energy rating after tenants move in and a requirement for a minimum size in advertisements.

The policy package on appliance and equipment energy efficiency includes the following measures:

- Broadening the scope of MEPS and labelling to include gas products
- Introduction of new or more stringent MEPS for residential products.

Both of these measures were discussed during the research. Energy efficiency standards for appliances were one of the most popular options (ranked equal second in voting). As this project focused specifically on electricity, expansion of MEPS and labelling to gas was not considered. The only appliances specifically mentioned for expansion of MEPS by participants were heaters.

A previous review of the feasibility of MEPS for electric space heaters concluded that such standards are neither necessary nor practical, given that electricity conversion efficiencies are close to 100% and space heating conditions vary so widely (GWA 2001). However, electric heaters do differ in the efficiency with which they transfer heat to a room. It may well be possible to develop MEPS for electric heaters based on their efficiency in heating a room. While it is recognised that the varying conditions under which heaters are used poses a problem for the development of suitable testing procedures, a more comprehensive assessment of the potential for MEPS is recommended.

The policy package on general consumer awareness includes the following measures to raise awareness and motivate energy saving actions:

- A requirement for energy retailers to provide benchmark data on energy bills
- Development of a nationally coordinated network to facilitate easy and timely access to high quality and relevant information
- Targeted promotional campaigns for specific energy efficiency issues
- Integration of energy efficiency concepts into the school curriculum.

The first and fourth measures were discussed or raised by participants during the research. Participants generally approved of benchmarking on bills and were keen for the inclusion of benchmarks for different household types to enable relevant comparison. However, this research project indicates that household characteristics vary widely, making development of meaningful benchmarks difficult. Further, it is possible that benchmarks could

be counterproductive if households that find they are consuming less than the average use them as justification to consume more. Consequently, the authors do not believe that there is value in pursuing a benchmarking scheme.

Participants in several workshops felt that teaching children about energy efficiency in schools would be a very effective strategy. This policy measure is endorsed by the research findings.

For the second and third measures, the research raises some important issues, discussed in Section 2.2.1. For advocacy purposes, the points raised in that section should be considered in any information services or promotional campaigns developed through the NFEE process. These points include responsiveness to cultural contexts, provision of information in different languages, provision of information in tailored forms that meet householders' specific requirements, face-to-face delivery of information, hands-on demonstration of options for energy efficiency improvement and cooperative delivery of information programs with community organisations and cultural groups.

2.5.2 National Appliance and Equipment Energy Efficiency Program

Specific suggestions from participants for improvements to the NAEEEP focused on provision of information on energy efficient appliances at the point of sale (e.g. in the form of a printed booklet) and inclusion of average running costs on Energy Rating labels. It is recognised that the inclusion of running costs on Energy Rating labels is problematic given the variation in tariffs and tariff structures across Australia. However, the value that householders place on this information warrants consideration of ways in which these problems might be overcome, such as adopting an average Australian tariff for cost calculation or providing several figures based on different tariffs.

2.5.3 The National Electricity Law

Appropriate amendments to the NEL, consistent with the findings of this research, have already been proposed by TEC et al (2004). Specifically, the proposed addition of a new clause to Part 2 of the NEL requiring that the NEC include provisions for the development of demand management is consistent with the research findings. Until demand management is supported by national legislation, the low prioritisation of demand management by utilities, landlords and other organisations is likely to continue.

This research project has also confirmed the impacts of the NEM on low-income households and identified a strong sense among participants that electricity is an essential service. TEC et al (2004) propose amendments to the NEL, including:

- The insertion in Part 1 of an Objects clause, including the objective 'to ensure consumers have continuous access to the affordable, reliable and safe supply of electricity under the NEM, in recognition that electricity is an essential service in the community'
- A new clause in Part 2 requiring regulators and market participants to consider the impact of their activities on low-income consumers.

Both of these amendments start to address some of the concerns raised by participants in this research project and should be advocated.

2.5.4 State regulatory arrangements

Concessions

Currently, the NSW *Electricity Supply (General) Regulation 2001* specifically requires any concessions applied to the bill to be itemised on the bill. The Victorian Electricity Retail Code and South Australian Energy Retail

Code do not have this requirement, although they require general information on concessions to be included on each bill. An amendment to these Codes to require itemisation of concessions on bills would go some way to addressing concerns raised by householders. It is also clear from the level of confusion displayed by householders that existing requirements to provide information on concessions are not completely effective. Further analysis of information provided by utilities on concessions is recommended.

Payment flexibility

The options suggested by participants for flexibility in bill payment requirements (see Section 2.3.2), or additional payment options, could potentially be incorporated into the Retail Codes in Victoria and South Australia and the Electricity Supply (General) Regulation in NSW. For example, disconnection could be disallowed unless the utility has worked with the customer and perhaps the relevant Ombudsman to develop a flexible payment option for that customer. Further analysis of additional options for payment flexibility and advocacy of the enshrinement of greater flexibility in the Retail Codes and regulations is recommended.

Metering requirements

The Electricity Metering Codes in Victoria and South Australia and the NSW Rules for Electricity Metering, or a consolidated national equivalent, would be an appropriate location to capture feedback requirements relating to interval metering, discussed in Section 2.2.3.

Energy efficiency audits

Currently, Section 11.3 of the Electricity Retail Code in Victoria and Section 12 of the Energy Retail Code in South Australia encourage retailers, respectively, to consider conducting an energy efficiency audit for customers that are having difficulty paying bills and to provide information on availability of energy audits. These existing requirements could be modified to *require* retailers to offer an energy efficiency audit to customers experiencing payment difficulties and/or customers with large bills. The audits could be delivered cooperatively with community workers trained in energy auditing. Funding support would be necessary for training and to cover the costs of the audit, as it is inappropriate for customers already experiencing financial difficulty to pay for the cost of the audit. In addition, the existing requirements relating to audits should be included in all Retail Codes and Regulations.

Least cost planning

Several participants felt that utilities should be required, encouraged or rewarded for undertaking least cost planning. It was felt that this would encourage greater demand management, as this would be cheaper than augmentation of the electricity distribution network in many cases. Encouraging the least cost solution for provision of network services is generally the role of the independent economic regulators in each State, achieved primarily through network price determinations. Distribution businesses are required to go to tender for demand side management when considering network augmentation through guidelines in the jurisdictions. However, the experience up to date is that demand side management is never implemented to avoid augmentation.

A specific requirement in the Electricity Distribution Codes in Victoria and South Australia and Electricity Supply (General) Regulation in NSW for distribution businesses to apply least cost planning in network investment decisions would provide a much stronger signal to distribution businesses. However, it is also clear that more needs to be done to understand the barriers to demand side management and intervention needs to occur to overcome barriers. This is outside the scope of this investigation.

This does not address the issue raised by some participants of how to reward electricity retailers for investing in demand management. Retailers do not currently see the benefits of avoiding network augmentation. This issue requires more detailed analysis, beyond the scope of this report.

2.5.5 Tariff structures

There was little direct support for changes in tariff structures from the research participants. Abolition or reduction of fixed service charges and implementation of inclining block tariffs for consumption were the most popular tariff-related options. In addition, participants overwhelmingly felt that declining block tariffs were unfair. The research therefore advocates that Governments in each jurisdiction ban declining block tariffs and investigate the feasibility of implementing inclining block tariffs (at distribution and retail levels), linked to community service obligations.

Further, regulators should consider the merit of reducing the proportion of fixed charges in total residential bills and increasing the proportion of consumption-related charges as a way of providing a stronger demand management price signal (as well as reducing bills for very small consumers, including many low-income households).

2.5.6 Delivery of concessions

Some participants suggested that concessions would be more useful if supplied as vouchers that they could use when required, in times of financial hardship. This would allow concession schemes to better meet the objective of easing financial hardship at appropriate times. There is already some experience with voucher systems through the NSW EAPA scheme. Investigation of the delivery of concessions through a voucher system is recommended.

2.5.7 Public housing policy

There are several ways to implement the public housing policy recommendations discussed in Section 2.3.3. First, the Department of Housing or equivalent in each State could adopt a progressive energy efficiency standard for all new public housing developments. There may be overlap here with minimum energy efficiency standards for new housing in general.

Second, the DOH in each State could embark on an ongoing retrofit program to bring existing public housing stock up to a suitable energy efficiency standard. There is some existing experience with such programs, including a Sydney Water retrofit program with the DOH in NSW.

Third, government procurement policies applying to public housing could be revised to require minimum energy efficiency standards are met for all appliances and equipment installed in public housing and for any other building services provided by contractors.

2.5.8 Housing legislation

As a first step in moving towards energy efficiency standards for rental housing, this research recommends the adoption of mandatory disclosure of energy efficiency ratings at the point of sale or lease for all residential properties. For rental properties, this could be implemented through amendments to the Residential Tenancies Act in each state, similar to those already adopted in the ACT. However, these amendments would go further than the ACT amendments by requiring landlords to obtain an energy efficiency rating before leasing their property and providing a report to prospective tenants describing how the rating was achieved.

In conjunction with these disclosure requirements, consideration should be given to the implementation of taxation incentives for landlords making certain improvements to rental properties that improve the energy efficiency of those properties. This would help to encourage gradual improvement of the efficiency of existing stock.

After evaluation of the impact of disclosure and taxation incentives on energy efficiency of housing stock, particularly the least efficient stock, consideration should be given to the adoption of minimum energy performance standards for rental housing. This integrated policy approach, similar to that already adopted for many appliances, provides market pull to raise overall energy efficiency and regulation to ensure a minimum standard is achieved.

2.5.9 Integrated Humanitarian Settlement Strategy

It is evident that aspects of the IHSS, specifically the Accommodation Support program and the Household Formation Support program, would be of greater value to humanitarian entrants if they prioritised energy efficiency. This would help to minimise ongoing energy bills for refugees and ease their transition to life in Australia. The necessary changes could be implemented through policy change, with appropriate funding support and education for the humanitarian organisations that deliver the IHSS.

Further, education on electricity use is a clear priority for inclusion in the IHSS. This education could be delivered by organisations that work with recently arrived refugees and migrants. Train-the-trainer programs would be required to support these organisations.

2.5.10 New programs

The research identified potential for new programs that are not directly linked to the existing institutions described above. These programs are outlined below.

A sustainable living program

Given the evidence for competing values around energy saving, water saving, health and safety, it would be advantageous to develop and deliver integrated householder education programs that consider the interactions between these values. A sustainable living program, covering energy, greenhouse, water, waste, health and transport issues, could provide integration as well as being more in tune with the way householders understand their lives. There are many existing models for such a program, including the Sustainable Living at Home program developed by Port Phillip City Council and the Sustainability Street program. Consolidation and national delivery of such programs would be advantageous.

A key element of such a program would be community involvement in, and delivery of, information and education. The program could include a train-the-trainer program, as described in Section 2.2.2, to improve access to different cultural groups and disadvantaged households. Existing community groups and organisations could be resourced to deliver workshops and in-home education.

Another important consideration for a sustainable living program would be to begin the long process of establishing positive cultural attitudes towards demand management and conservation. The current “culture of consumption” is a strong barrier to demand management, evident in the responses of many of the research participants. The establishment of sustainable lifestyles and housing as attractive options requires attention to the increased comfort and convenience that sustainable options can provide. That is, sustainable design needs to be high-quality, attractive design. The AGO’s Your Home website (www.yourhome.gov.au) is an excellent example of attractive presentation of sustainable design.

Given that a sustainable living program of this type is not focused on energy alone, it would be most appropriately delivered under the auspices of the Department of Environment and Heritage, preferably with collaboration by the Australian Greenhouse Office and relevant State departments.

A National Demand Management Fund

IPART (2002) has proposed the establishment of a Demand Management Fund in NSW and this proposal is currently under consideration. TEC (2004) recommends the establishment of Demand Management Funds by each of the NEM jurisdictions with funding sourced from a levy on electricity. A National Demand Management Fund, funded by a small levy on each unit of electricity sold, could be an appropriate way to provide the energy efficiency incentives and rebates desired by research participants. While the electricity levy would slightly raise the price of electricity, the funds would be returned to consumers through reductions in the initial capital cost of efficient products and services.

There is an opportunity to establish a National Demand Management Fund as part of the ongoing electricity market reform process overseen by the MCE. The rules for the Fund could be included as rules under the NEL. Utilities, community organisations and others could apply for funds to implement a range of innovative demand management initiatives.

Fuel Poverty Strategy

An integrated Fuel Poverty Strategy would address the specific needs of low-income households in relation to energy. As in the UK, the objective should be to eliminate fuel poverty in Australia by a target year and indicators should be developed to measure progress. The Fuel Poverty Strategy would contain a mix of existing and new programs, and could employ a variety of specific strategies, including:

- Electricity concessions and/or payment vouchers for households experiencing fuel poverty
- Access to flexible payment mechanisms and dispute resolution schemes
- Socially responsible tariff structures
- Subsidised retrofits for public housing and low-income households
- Energy-efficient procurement policies for new public housing
- Energy efficiency standards for rental housing.

The Fuel Poverty Strategy would be a high priority for funding under the National Demand Management Fund.

2.6 Recommendations for further research

This section briefly summarises recommendations for further research made throughout the report.

2.6.1 Research with high consumption households

There is a need for further research with households that have higher incomes and higher energy use than those participating in this research, particularly households that have significant discretionary energy use. This research could use the same general approach employed in this project, but with some modifications to the recruitment strategy. Several modifications could be contemplated. One would be to hold public workshops that were advertised very widely. However, there is a risk here of 'preaching to the converted' and failing to reach those households that do not contemplate reductions in energy use.

Another possibility is to send invitations to participate to randomly selected households and to recruit from the subset of respondents, according to pre-determined targets for income distribution. A third possibility would be to continue with a network approach but target organisations more likely to involve high-income householders.

For example, the researchers could work with companies to establish workshops with professional staff, or with schools to establish workshops with parents.

In addition, workshops would preferably be scheduled in the evening, on weekends or, in the case of company workshops, during work hours.

2.6.2 Detailed research on specific options

Constraints on the time available for workshops prevented detailed discussion of specific policy options. Further detailed research on specific policy options, with groups of householders, is recommended. Options suitable for further research would include those that were particularly popular with householders and those that were too complex to easily present in the workshop format. A workshop format may still be appropriate, but the workshop would need to focus on a small number of options in detail.

An important focus for detailed research would be the level of incentive or rebate that would encourage householders to adopt particular options. This is likely to be a major influence on the popularity of different options. With better information on the necessary level of incentive, it will be possible to determine whether particular options will have a net benefit to society and should therefore be recommended.

The detailed research recommended here would likely require more time to go through the details of particular options with participants. It may also require expert presentations and technology demonstrations. This type of research would demand more of participants and would provide less by way of practical education, so would likely require incentives to encourage participation. For example, participants could be offered a free energy retrofit or vouchers to purchase energy efficient equipment.

2.6.3 Interval meter trials

A particular recommendation for further research is to conduct an interval meter trial, using dummy cost-reflective tariffs, to investigate whether participants actually react to this combination of feedback and tariffs by shifting and reducing energy use. Such a trial could consider:

- The extent to which participants were able to respond to interval meters and cost-reflective tariffs by modifying behaviour
- The magnitude of resulting reductions in energy consumption
- Whether particular types of interval meter are preferred by customers and/or prompt larger reductions in energy use
- Which tariff structures prompted the greatest reductions in energy use, e.g. full pass-through tariffs or tariffs with blocks of different price during the day?

Households participating in the research would need to have a new interval meter installed. Meters could be installed specifically in a randomly selected sample of households. Another possibility is to recruit participants opportunistically at the time when they have a meter installed. This would be possible from 2006 in Victoria, when all new and replacement meters must be interval meters.

The sample size would depend to some extent on the available funding and on the final research design, however the literature indicates that a sample size of 50 to 100 households in any participating city would be appropriate to adequately investigate the issues listed above. Householders could be assigned to different groups with different meters and/or different dummy tariff structures.

To allow for seasonal variation, the research project would ideally run for a full year, and would need to obtain access to billing data for the previous year to enable comparison. Participants could be interviewed at the start and end of the project to investigate how the metering and tariff combination affected their attitude to electricity consumption.

2.6.4 Concessions research

As noted in Section 2.3.1, further research is needed to determine whether the provision of concessions in their current form is the most useful method for supporting the access of disadvantaged people to electricity. This research could consider the possibility of implementing a concession voucher system so that eligible householders could opt to use concession vouchers (to a predetermined value) at the point in the year when most needed. It could also investigate information provided by utilities about concessions, given the high level of confusion evident amongst research participants. In addition, the advantages of using public funding currently used for concessions to provide retrofits should be investigated. Retrofits would provide a permanent bill reduction for a single investment, as opposed to the ongoing investment required for concessions.

