IPART
New South Wales

Independent Pricing and Regulatory Tribunal

Residential energy and water use in the Hunter, Gosford and Wyong

Results from the 2008 household survey

Electricity, Gas and Water — Research Paper
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1 Introduction

In 2008 the Independent Pricing and Regulatory Tribunal of New South Wales (IPART) conducted a survey of residential water, electricity and gas consumers in the Gosford City Council area (Gosford), Wyong Shire Council area (Wyong) and the area served by Hunter Water Corporation (the Hunter). The data set collected by this survey combines water, electricity and gas consumption data with socio-economic, demographic and behavioural data at the household level.

IPART has previously surveyed residential water, electricity and gas consumers in the Sydney, Blue Mountains and Illawarra areas[1] in 1993, 1996, 2003 and 2006. Newcastle (in the Hunter area) was included in the 1996 survey, but not in the later surveys. This is the first household survey undertaken by IPART in the Gosford and Wyong areas.

1.1 Purpose of the survey

As in its previous household surveys, IPART's main aim in conducting the 2008 survey was to collect information on the characteristics of households and their energy and water use that will help it to:

- assess the impact of its energy and water pricing decisions on different households and community groups, particularly low-income households
- assess the extent of participation in the retail energy market, and households' experience of competition in this market.

In addition, the 2008 survey is one of the ways IPART is investigating the demographic and socio-economic characteristics of the Central Coast area, in line with the commitment it made in its 2006 report on water prices in Gosford and Wyong.[2]

1 These areas cover Sydney Water's area of operation.

2 IPART, *Gosford City Council and Wyong Shire Council prices of water supply, wastewater and stormwater services From 1 July 2006 to 30 June 2009,* Final Report and Determination, May 2006, pp 96-97.

1.2 The 2008 survey

The 2008 household survey was conducted between March and July 2008. A total of 2,608 households were surveyed, including 1,672 in the Hunter area, 529 in the Gosford area and 407 in the Wyong area. (See Box 1.1 for definitions of these survey areas.)

IPART engaged McLennan Magasanik Associates (MMA), in combination with McNair Ingenuity, to undertake the survey on its behalf. In most cases, they conducted face-to-face interviews with a representative of each household, but they also did some computer-aided telephone interviews (CATI). The interviewers also asked households to allow their water and energy suppliers[3] to give MMA access to their consumption data. This allowed MMA to provide a combined data set that included the participants' responses to the survey questions and their consumption data. A more detailed description of the survey design and methodology is provided in Appendix A.

Box 1.1 Definitions of survey areas and other terms used in this report

In this report

- 'the Hunter' refers to the area supplied by Hunter Water Corporation. This includes the local government areas of Newcastle, Maitland, Lake Macquarie, Cessnock and Port Stephen.
- 'Gosford' refers to the Gosford City Council area.
- 'Wyong' refers to the Wyong Shire Council area.
- 'Sydney' refers to the Sydney Water supply area, which includes metropolitan Sydney, the Blue Mountains and the Illawarra. In some sections, IPART has drawn comparisons against the Sydney metropolitan area, excluding the Blue Mountains and the Illawarra. In such cases, the area is referred to as the Sydney metropolitan area.
- 'Sydney 2006' refers to 2006 data for the Sydney Water supply area.

Average electricity, gas and water consumption data are reported on an annual basis unless stated otherwise.

[3] Water consumption data were obtained from Hunter Water Corporation, Gosford Council and Wyong Council. Electricity and gas consumption data were obtained from the network operators, respectively EnergyAustralia and Alinta (now Jemena).

1.3 Overview of survey results

In analysing the survey results, IPART aimed to identify key differences and similarities in energy and water consumption behaviour and household characteristics across the Hunter, Gosford and Wyong areas, and identify income and affordability issues. It also compared the survey results with those for Sydney consumers from its 2006 Household Survey.[4]

The sections below summarise the survey results in three key areas:

- electricity, gas and water consumption
- income, consumption and payment difficulties
- households' experience of full retail competition in the energy market.

While the results suggest (sometimes strong) relationships between energy and water consumption and various household characteristics, such relationships do not necessarily imply causation. Consumption may be driven by other underlying factors, or a complex combination of factors, and therefore the results should be interpreted with caution.

1.3.1 Electricity, gas and water consumption

The 2008 survey results for the Hunter, Gosford and Wyong areas confirm many of the relationships between electricity, gas and water use and household characteristics observed from the 2006 results for the Sydney, Illawarra and Blue Mountains regions. In particular:

- Higher electricity, gas and water use is associated with households that:
  - have a higher number of occupants
  - have more large energy and water using appliances (such as air conditioners, second refrigerators, dishwashers and swimming pools)
  - live in freestanding houses rather than other dwelling types (such as semi-detached homes, townhouses and units).
- The amount of energy and water households use depends more on how often they use appliances than whether or not they have them.
- On average, higher income households use more electricity, gas and water than lower income households. This is partly because higher income households tend to be larger, but also because they have more appliances and amenities and use them more often.

4 IPART, *Residential energy and water use in Sydney, the Blue Mountains and Illawarra. Results from the 2006 household survey*. Electricity, Gas and Water – Research Paper 29, 2007.

But there are also important differences in consumption patterns between the Hunter, Gosford and Wyong areas and the Sydney metropolitan area. In particular, on average, households in the former areas consume less electricity, gas and water than households in the Sydney metropolitan area, and their consumption is more like that of households in the Illawarra. This appears to be because:

- Households in the Hunter, Gosford, Wyong and Illawarra regions are smaller, and are more likely to comprise retired couples or a single person than households in the Sydney metropolitan area. For example, about two-thirds of households in the Hunter, Gosford and Wyong areas are one or two person households, compared to just over half of households in the Sydney metropolitan area.
- Average household incomes are lower in the Hunter, Gosford, Wyong and Illawarra areas than those in the Sydney metropolitan area. For example, the 2006 Census data indicate the median household income in the Sydney metropolitan area in 2006 was $1,154 per week, while the median household income in the Hunter was $888 and in Gosford and Wyong it was $856 per week.
- The Hunter, Gosford, Wyong and Illawarra areas are all predominantly coastal areas, and households in these more temperate coastal areas may have less need for space heating and cooling. Higher rainfall in the coastal areas may also play a role in the amount of water used outdoors.

Impact of appliances and air conditioners on electricity consumption

The survey asked households whether they have, and if so how often they use large energy using appliances and amenities such as clothes dryers, dishwashers, washing machines, second refrigerators and swimming pools. The results clearly indicate that higher energy and water consumption is associated with appliance/amenity ownership, and with more frequent use.

The survey asked more detailed questions about air conditioners because they are widely believed to contribute significantly to daily peak loads on the electricity network, particularly in summer. Respondents were asked whether they have an air conditioner installed. If not, they were asked whether they intended to install an air conditioner in the future. If they did, they were asked how often, and for how long they use their air-conditioners during different seasons and times of the week. The results show clearly that the more air conditioners are used, the more electricity is consumed.

The 2008 survey found less variation in the proportion of households with air conditioners across income categories than might be expected, which is consistent with the 2006 Sydney survey. However, the survey found that higher income households are likely to use their air conditioners more frequently than lower income households.

In addition, households in the Hunter, Gosford and Wyong areas indicated similar sensitivity to a hypothetical 25 per cent increase in the price of electricity as households Sydney in 2006. In both areas, about half of respondents said they would turn off their units on very hot days, even if only for short periods, if there was this level of price increase. But a higher proportion of respondents in the Hunter, Gosford and Wyong areas indicated that they would switch off their air conditioners all day.

Access to mains gas

Households in the Hunter, Gosford and Wyong areas are less likely to use mains gas and more likely to use cylinder gas compared to Sydney, because of the limited penetration of mains gas, particularly in Gosford. In addition, households that use mains or cylinder gas in these areas tend to be larger and fall into higher income brackets than households without gas. One of the consequences of this is that, unlike in Sydney, average electricity consumption does not vary much between households with and without mains gas.

Impact of water shortages in Gosford and Wyong

The survey found that household water consumption in Gosford and Wyong is significantly lower than in the Hunter area. On average, households in Gosford and Wyong consumed between 166 kL and 152 kL of mains water in 2008 whereas those in the Hunter consumed 182 kL. Households in Gosford and Wyong were also far more likely to use bore water, grey water and water from rainwater tanks.

A likely reason for this finding is that Gosford and Wyong have experienced water shortages whereas the Hunter area has not. Consequently, Gosford and Wyong have had water restrictions in place since February 2002, and fairly stringent (level 3) restrictions applied at the time of the 2008 survey. In contrast, no restrictions applied in the Hunter area. The Gosford and Wyong councils have also taken further steps to reduce water consumption from the town supply (ie, mains water) including the introduction of incentives to adopt water saving technologies, extensive media coverage of the drought and education campaigns.

In comparison, Sydney has faced water restrictions since 2003, and average residential water consumption per household has fallen from 250 kL in 2003 to 183 kL in 2008. In spite of this, average consumption in Sydney is similar to that in the Hunter area where there are no water restrictions (182 kL). This underlines the importance of factors such as household size and appliance use as determinants of water consumption.

1.3.2 Income, payment difficulties and concession cards

A household's income can influence its consumption of electricity, gas and water, as well as its ability to pay for these services. The survey asked a number of questions about income and payment difficulties and found that, in general, lower income households consume less electricity and water than higher income households. However, as in Sydney in 2006, there are significant numbers of both large and small users within each income category.

In the Hunter, Gosford and Wyong areas, the relationship between gas usage and income is less clear because gas users in these areas tend to have higher incomes than those who do not use gas. The small sample size in these areas also made the analysis less reliable.

Most households (86 per cent) in the lowest income group (less than $31,200 per year) have concession cards entitling them to rebates on their utilities bills. The fact that households that include concession card holders tend to have lower consumption levels (and hence smaller utility bills) and can claim rebates on their utility bills suggests that these households may be less likely to experience payment difficulties than low and low-middle income households without concession cards, particularly if the latter have more occupants.

Payment difficulties are spread across all income groups, and decline significantly only for households with incomes exceeding $104,000 per year. In the lower and middle income groups, larger households and renters are more likely to face financial difficulties in paying their bills than smaller households and those who own their own homes.

As in Sydney in 2006, households are more likely to have difficulty paying their electricity bills than their gas or water bills, and are more likely to approach their electricity supplier because they cannot pay these bills. Electricity bills are more difficult to pay than water bills because they tend to be larger, attract lower rebates, and are paid in full by renters (who only pay the usage component of water bills). In addition, electricity prices have risen more rapidly than gas or water prices in recent years.

The survey found that renters in the Hunter, Gosford and Wyong areas are more likely to have payment difficulties than those in Sydney. For example, 30 per cent of renters in these areas approached their electricity supplier in the last three years with payment difficulties, compared to 22 per cent in Sydney in 2006. The survey also found that when approached, electricity suppliers were most likely to extend the due date of a bill or allow instalment payments, rather than ceasing the service.

However, only a small proportion of all households in the Hunter, Gosford and Wyong areas (7 per cent) had received Energy Accounts Payment Assistance (EAPA) vouchers to help pay energy bills in the last three years, and only 2 per cent had

sought other forms of financial assistance to pay utilities bill (such as from a welfare organisation).

1.3.3 Households' experience of full retail competition in the energy market

Full retail competition (FRC) for electricity and gas was introduced in NSW on 1 January 2002. The 2008 survey findings suggest that, as in Sydney in 2006, most households in the Hunter, Gosford and Wyong areas are aware of this.

Since 2002, there has been somewhat more activity in the electricity market in the Hunter, Gosford and Wyong areas than there had been in Sydney at the time of the 2006 survey. More households have been offered a market contract by their pre-FRC supplier (54 per cent, compared to 44 per cent in Sydney in 2006), and more households have accepted these offers (64 per cent compared to 53 per cent). In addition, while a similar proportion of households have been offered a market contract by another supplier in both areas (about 53 per cent), more households in the Hunter, Gosford and Wyong areas have switched to another supplier (42 per cent compared to 34 per cent in Sydney).

However, gas retailers have been less active in the Hunter, Gosford and Wyong areas than in Sydney, possibly due to the limited penetration of mains gas in these areas. Nevertheless, a higher proportion of gas customers in the Hunter, Gosford and Wyong areas have taken up market contracts than in Sydney. For example, 47 per cent of those who received an offer from their pre-FRC supplier accepted the offer (compared to 38 per cent in Sydney), while 53 per cent of those who received an offer from another supplier switched suppliers (compared to 19 per cent in Sydney). Almost all those who switched gas suppliers moved to their pre-FRC electricity supplier (EnergyAustralia).

There are a number of active suppliers in the electricity market, and significant proportions of households in the Hunter, Wyong and Gosford areas knew about alternative suppliers such as Integral Energy, AGL, Origin Energy, Country Energy and Jack Green. On the other hand, few households were aware of gas suppliers other than AGL (their pre-FRC gas supplier) and EnergyAustralia.

The main reason households gave for deciding to accept a market offer and/or switch energy supplier was that the offer was cheaper. However, only one-third of both electricity and gas customers felt that their bills had gone down after they moved to a contract. Respondents who have stayed with their pre-FRC supplier or rejected a market offer said they did so mainly because they are happy with their existing supply arrangements.

Only a small portion of households have actively approached an electricity or gas supplier to ask about entering into a contract. In addition, about 15 to 20 per cent of respondents said they do not have confidence in their ability to choose an electricity or gas retailer and do not feel they have sufficient information to make an informed decision.

1.4 Structure of the report

The following chapters present the results of the 2008 survey in more detail and, where appropriate, compare the results for the Hunter, Gosford and Wyong areas with data collected as part of the 2006 survey in the Sydney, Blue Mountains and Illawarra regions:

- Chapter 2 provides a comparative profile of households in these two survey areas
- Chapters 3 to 5 provide profiles of household consumption patterns for electricity, gas and water, with a particular focus on understanding the key characteristics of high and low consumption households
- Chapter 6 investigates the relationship between electricity, gas and water consumption, household income and payment difficulties
- Chapter 7 discusses the survey findings in relation to the development of retail competition in the residential energy market.

In addition, Appendix A provides an overview of the survey design and methodology. Appendices B, C and D provide the survey questionnaire, a media release published in the local newspapers prior to the survey, and the introductory letter presented to participating households. Appendix E provides detailed tables on the 2008 survey results. Appendix E is available on IPART's website at <http://www.ipart.nsw.gov.au/investigation_content.asp?industry=5&sector=current&inquiry=146>

2 Profile of households in the Hunter, Gosford and Wyong area

The demographic, socio-economic and physical characteristics of the households in an area can have a significant impact on the patterns of residential water and energy consumption in that area, as well as households' payment difficulties.

IPART has used the data from its 2008 household survey and the 2006 Census to develop a profile of typical households in the Hunter, Gosford and Wyong areas, including average household incomes, household structures and the size and type of dwellings. It has also compared the characteristics of these households with those in Sydney, using 2006 Census data and the data from its 2006 household survey.[5] In addition, IPART has identified any local energy and water supply issues that help to explain the differences in household consumption levels in the Hunter, Gosford or Wyong areas and Sydney.

The sections below discuss its findings on household characteristics, dwelling characteristics and local supply issues.

2.1 Household characteristics

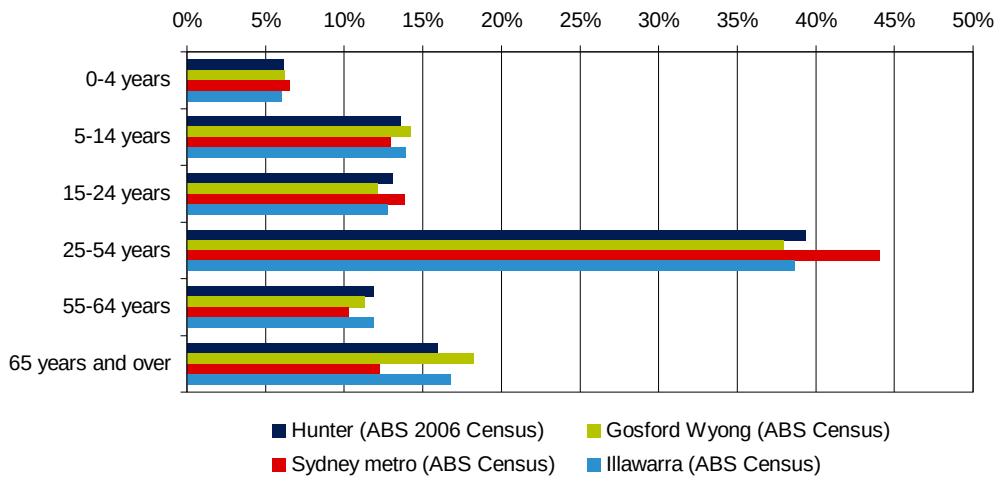
The characteristics of typical households in the Hunter, Gosford, Wyong areas are quite different to those in the Sydney metropolitan area. However, there are a number of similarities between the typical household characteristics in the Hunter, Gosford and Wyong areas and the Illawarra region.

2.1.1 Age profile of population

A higher proportion of the population in the Hunter, Gosford and Wyong areas are aged 65 years and older, than in the Sydney metropolitan area. The Hunter, Gosford and Wyong areas are more like the Illawarra region in this respect. In these areas, 16–18 per cent of the population are aged over 65, compared to 12 per cent in Sydney. The Hunter, Gosford and Wyong areas also have a lower proportion of households in the 25–54 age group (38–39 per cent) than the Sydney metropolitan area (44 per cent). (See Figure 2.1.)

5 IPART, *Residential energy and water use in Sydney, the Blue Mountains and Illawarra. Results from the 2006 household survey*. Electricity, Gas and Water – Research Paper 29, 2007.

Figure 2.1 Age profile of populations



Data source: ABS, 2006 Census QuickStats, for Hunter (Statistical Division), Gosford-Wyong (Statistical Subdivision), Illawarra (Statistical Division), Sydney (Statistical Division).

2.1.2 Household structure and family types

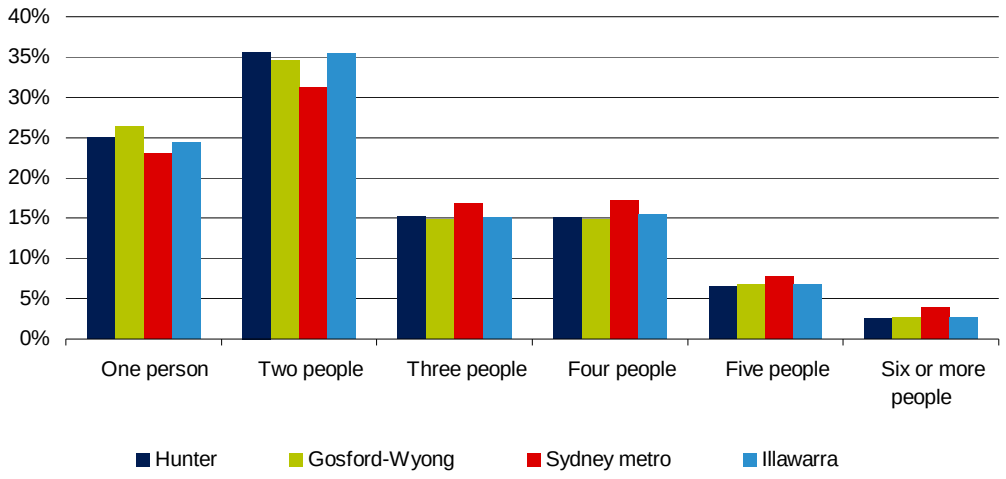
In the Hunter, Gosford and Wyong areas, there is a higher proportion of people living alone (25–26 per cent of households) than in the Sydney metropolitan area (23 per cent)[6] (Figure 2.2).

These areas also include a higher proportion of family households with no children (38–39 per cent) and a lower proportion of family households with children (59–61 per cent). In comparison, in the Sydney metropolitan area, 33 per cent of family households include no children, and 65 per cent include children[7] (Figure 2.3).

6 ABS, 2006 Census of Population and Housing, Gosford and Wyong Statistical Subdivision, Sydney Statistical Division.

7 Couples with children and single parent families.

Figure 2.2 Household size – number of usual residents (2006 Census) [a]

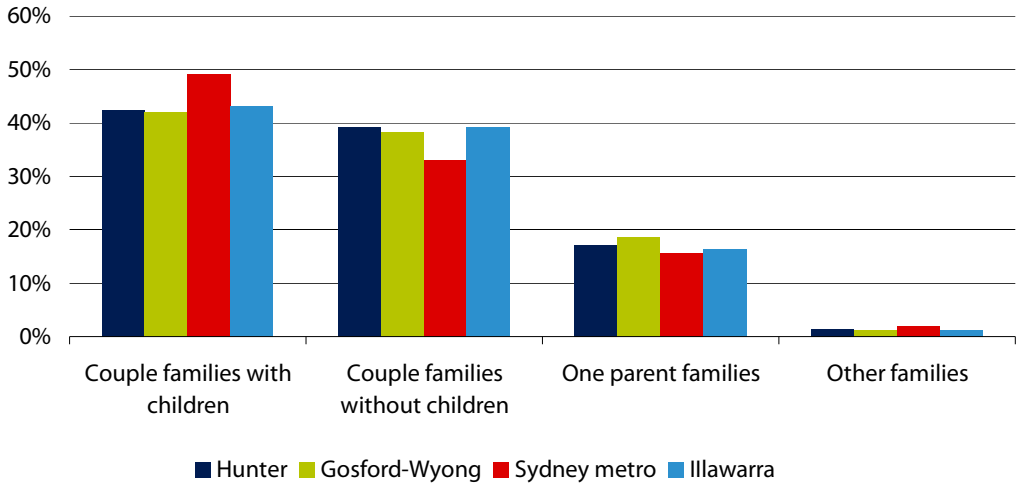


[a] Includes 'Families', 'Lone Persons' and 'Group Households'.

Note: Number of usual residents refers to the number of persons usually resident in household.

Data source: , ABS 2006, Census of Population and Housing, Table B30, Household composition by number of persons usually resident, for Hunter (Statistical Division), Gosford-Wyong (Statistical Subdivision), Illawarra (Statistical Division), Sydney (Statistical Division).

Figure 2.3 Percentage of families in different categories (2006 Census)



Note: Includes 'Family' households, excludes "Lone Persons' and 'Group Households'.

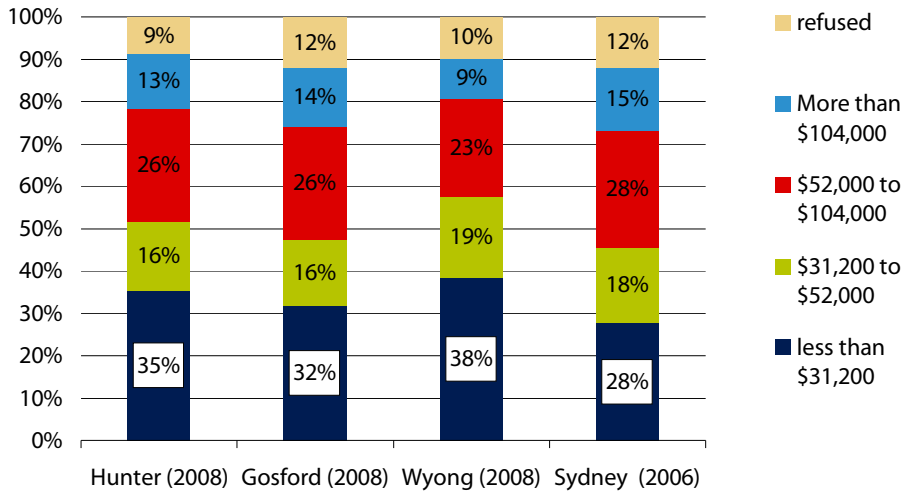
Data source: ABS, 2006 Census QuickStats, for Hunter (Statistical Division), Gosford-Wyong (Statistical Subdivision), Illawarra (Statistical Division), Sydney (Statistical Division).

2.1.3 Household income

On average, households in the Hunter, Gosford and Wyong areas have lower household incomes than those in the Sydney metropolitan area. The 2006 Census data indicate the median household income in the Sydney metropolitan area in 2006 was $1,154 per week, while the median household income in the Hunter was $888 and in Gosford and Wyong it was $856 per week.[8]

IPART weighted the 2006 and 2008 household surveys to match the income profiles from the ABS 2006 Census data.[9] It found there is a higher proportion of low income households in the Hunter, Gosford and Wyong areas than the Sydney area: 32–38 per cent of households in these areas have annual incomes of less than $31,200, compared to 28 per cent of Sydney households (Figure 2.4).

Figure 2.4 Proportion of households by income category



Data source: : IPART Household Survey (Hunter, Gosford and Wyong);, 2006 IPART Household Survey (Sydney), weighted by ABS income data from the 2006 Census.

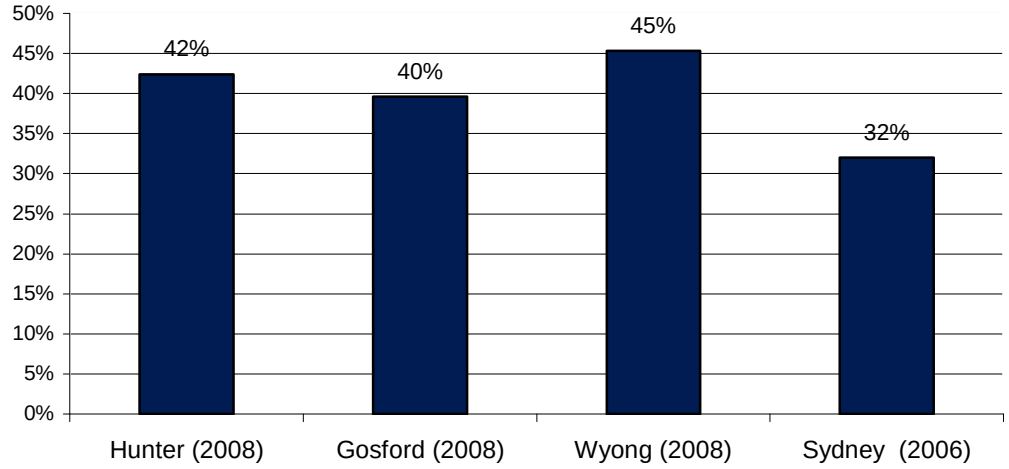
2.1.4 Concession cards

Given the higher proportions of low income and retiree/pensioner households in the Hunter, Gosford and Wyong areas, it is not surprising that there is also a larger proportion of households with concession cards in these areas than in the Sydney area (Figure 2.5).

8 ABS, 2006 Census QuickStats, for Hunter (Commonwealth Electoral Division), Gosford-Wyong (Statistical Subdivision), Illawarra (Statistical Division), Sydney (Statistical Division).

9 Income weights are discussed in Appendix A, section A.9.2.

Figure 2.5 Percentage of households with concession cards



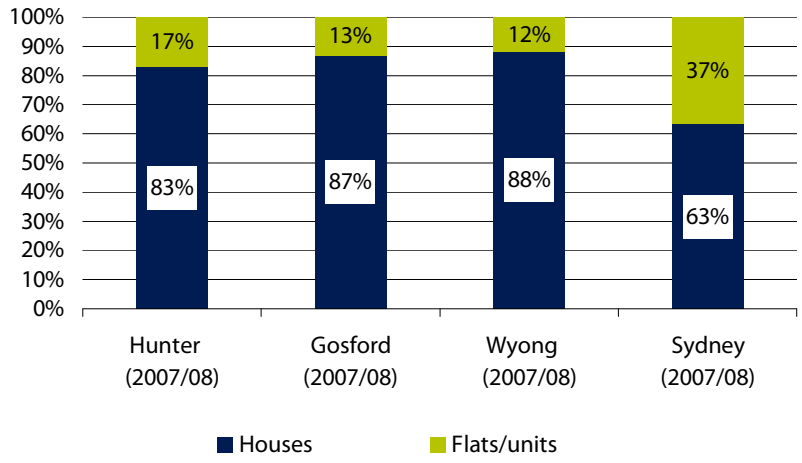
Data source: 2008 IPART Household Survey (Hunter, Gosford and Wyong);, 2006 IPART Household Survey (Sydney).

2.2 Dwelling characteristics

2.2.1 Types of dwelling

Dwellings in the Hunter, Gosford and Wyong areas include a much lower proportion of flats than in Sydney (Figure 2.6).

Figure 2.6 Dwelling type – percentage of houses and flats

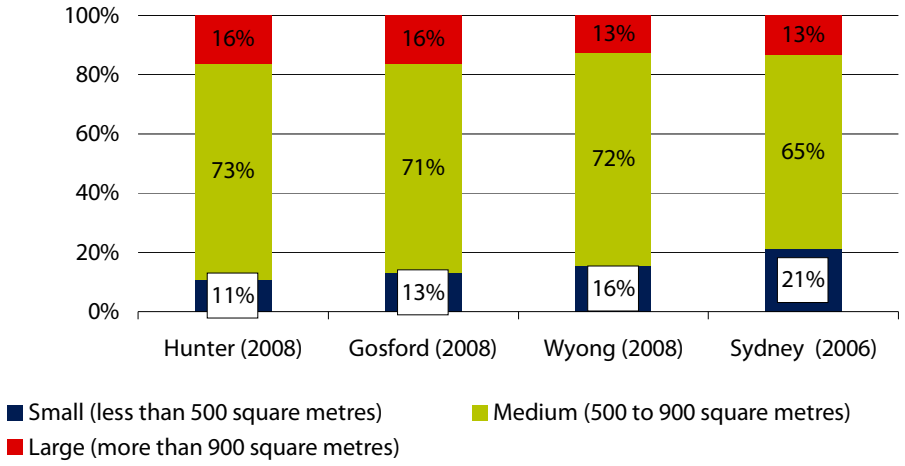


Data source: Information for 2007/08 provided by Sydney Water Corporation, Hunter Water Corporation, Gosford Council and Wyong Council.

2.2.2 Land size for houses

The size of land can impact water consumption because people may use more water to water their gardens. The average size of a block of land is larger in the Hunter, Gosford and Wyong areas than in Sydney. For example, in the Hunter, only 11 per cent of blocks are less than 500 m^2 whereas in Sydney in 2006, 21 per cent of blocks of land were less than 500 m^2 (Figure 2.7).

Figure 2.7 Size of land (freestanding houses only)



Data source: IPART Household Survey (Hunter, Gosford and Wyong);, 2006 IPART Household Survey (Sydney).

2.3 Local supply issues relevant to household consumption

Two key supply issues are likely to influence household consumption patterns in the Hunter, Gosford and Wyong areas. First, there is less access to mains gas in these areas than in Sydney. Mains gas connection is particularly low in Gosford, where only 17 per cent of households use mains gas for heating or cooking.

Second, there have been water shortages in Gosford and Wyong, but not in the Hunter area. Consequently, Gosford and Wyong have had water restrictions in place since February 2002, and fairly stringent (level 3) restrictions applied at the time of the 2008 survey, whereas no restrictions applied in the Hunter area.

The effect of these supply issues on gas and water consumption is discussed in more detail in Chapters 4 and 5 respectively.

3 Electricity consumption in the Hunter, Gosford and Wyong

As part of the 2008 household survey, IPART asked participants about their household's characteristics – including the household's size, structure, income and dwelling type. It analysed their responses to these questions to identify the household characteristics associated with high and low electricity consumption. IPART also asked participants questions about how many large appliances their household has and how frequently they use them to identify which appliances and usage patterns tend to be associated with higher energy use. In addition, given the concern about the impact of increasing air conditioner usage on energy demand,[10] IPART asked questions about their household's air conditioner usage patterns (including how often the units are turned on in winter and summer) and how this usage might change if there were a hypothetical 25 per cent increase in the price of electricity.

In summary, IPART's analysis of the survey data indicates that:

- The average household electricity consumption across the Hunter, Gosford and Wyong area is 6,291 kWh, which is around one-fifth lower than in the Sydney metropolitan area.
- The household characteristics that most influence average household consumption seem to be the number of occupants, whether or not some of the occupants are children, the level of household income, and whether or not they live in a freestanding house.
- Having large appliances such as clothes dryers, dishwashers, swimming pool pumps and second refrigerators is associated with higher average household consumption.
- Over half of respondents with an air conditioner indicated that they would use it less in response to a hypothetical 25 per cent increase in the price of electricity.

These findings are discussed in more detail below, except for findings related to income (which are discussed in Chapter 5).

10 Professor Anthony Owen, *Report on Inquiry into Electricity Supply in New South Wales,* September 2007, chapter 4, p 20.

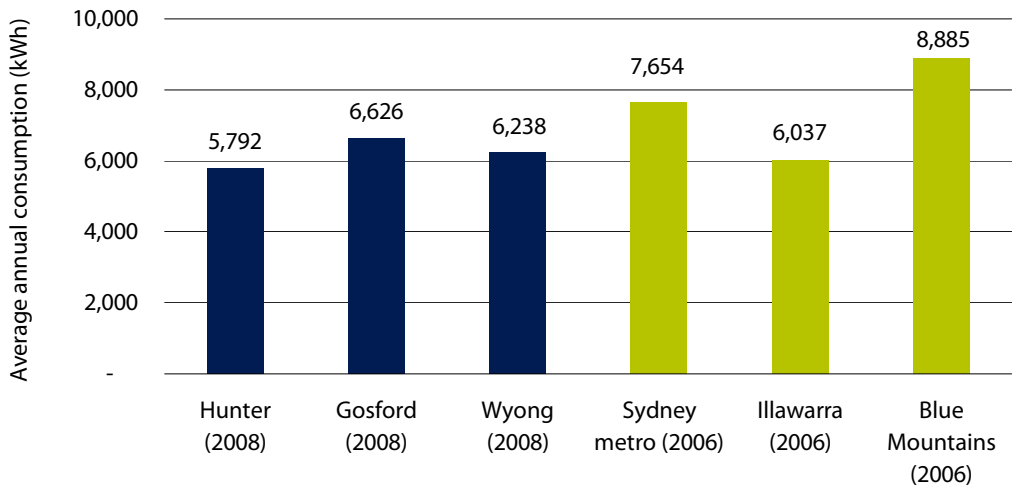
3.1 Average electricity consumption

On average, electricity consumption is somewhat higher in Gosford (6,626 kWh) than in Wyong (6,238kWh) and the Hunter (5,792kWh) (Figure 3.1). The reason for the higher level of consumption in Gosford is not clear, but may in part reflect the lower incidence of mains gas in that area (17 per cent) compared to Wyong (27 per cent) and the Hunter (33 per cent).

Average consumption levels across all three surveyed areas are lower than the average electricity consumption in the Sydney metropolitan area in 2006 (7,654 kWh). This is likely to reflect a range of factors including the smaller average household size, and the higher proportion of retirees and low-income households in these areas compared to Sydney (see Chapter 2).

Average consumption in the Hunter, Gosford and Wyong areas is similar to that in the Illawarra in 2006. This is likely to reflect the demographic similarities between these areas, and the fact that all four areas are coastal. IPART's 2006 survey of the Greater Sydney region found that households in coastal areas tend to use heaters and air conditioners less often than those in inland areas. For example, this survey found that average electricity consumption in the Blue Mountains was higher than the overall average in the surveyed region, and average consumption in the coastal suburbs of Sydney's east was lower than that in the inland suburbs of the west.

Figure 3.1 Average electricity consumption by region



3.2 How do household characteristics affect electricity consumption?

Of the surveyed households in the Hunter, Gosford and Wyong area:

- 31 per cent are considered low users (consuming less than 4,000kWh per annum)
- 64 per cent are considered moderate users (with 47 per cent consuming 4,000 to 8,000 kWh and 17 per cent using 8,000 to 12,000 kWh per annum)
- 6 per cent are considered high users (consuming more than 12,000 kWh per annum).

Table 3.1 below provides a snapshot of the household characteristics of low and high electricity users in the survey area. It suggests the household characteristics most associated with low average electricity use are having two or less occupants, not living in a freestanding house, and being over retirement age. The characteristics most associated with high average use are having four or more occupants, living in a freestanding house, and being under retirement age.

Table 3.1 Snapshot of household characteristics of high and low electricity users

Low electricity users (less than 4,000 kWh per annum)	High electricity Users (more than 12,000 kWh per annum
On average, 1.7 people reside in household	On average, 4 people reside in household
50% are single person households 10% are couples with children	3% are single person households 79% are couples with children
78% live in freestanding houses	97% live in freestanding houses
17% live on small blocks of land 11% live on large blocks	6% live on small blocks of land 28% live on large blocks
60% are aged over 65 years	14 % are aged over 65 years

Further examination of the relationship between electricity consumption and household characteristics suggests the characteristics that most influence average household consumption in the Hunter, Gosford Wyong and Sydney areas are:

- the number of occupants
- whether or not some of the occupants are children
- whether or not the household lives in a freestanding house.

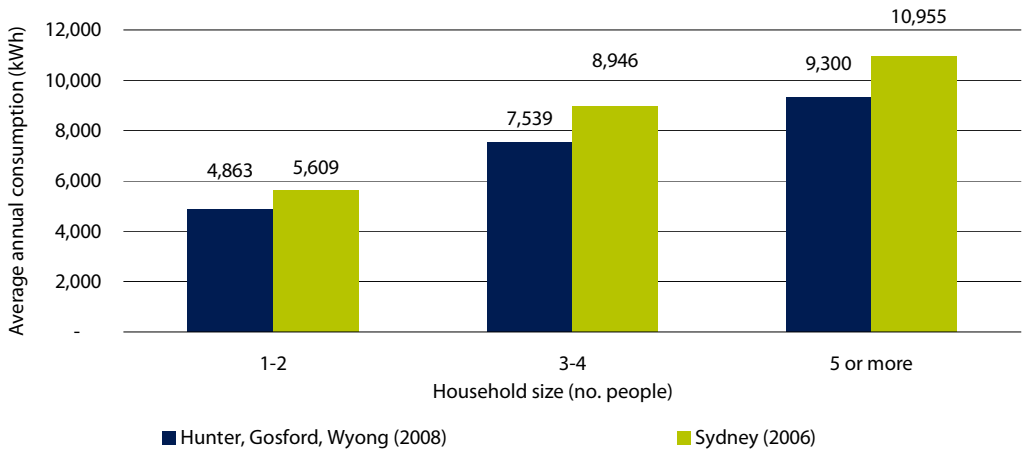
Whether or not the household is connected to mains gas was found to have a significant impact on electricity consumption in Sydney in 2006. However, this relationship is not evident in the Hunter, Gosford and Wyong areas.

3.2.1 Number of occupants

The 2008 survey found that average electricity consumption in the Hunter, Gosford and Wyong areas increases on average with the number of household occupants (Figure 3.2). Average consumption for households with five or more occupants is

9,300 kWh, which is 91 per cent higher than that for households with one or two occupants. The 2006 household survey found a similar relationship between electricity consumption and household size in Sydney, where average consumption for households with five or more occupants was 95 per cent higher than that for households with one or two occupants.

Figure 3.2 Average electricity consumption by household size



3.2.2 Whether or not some of the occupants are children

The 2008 survey also found that within households of the same size, household structure influences the level of electricity consumption. For example, households that include children under 15 years of age use less electricity on average than households of the same size comprising only adults, where an adult is defined as anyone 15 years of age or older. For example, on average:

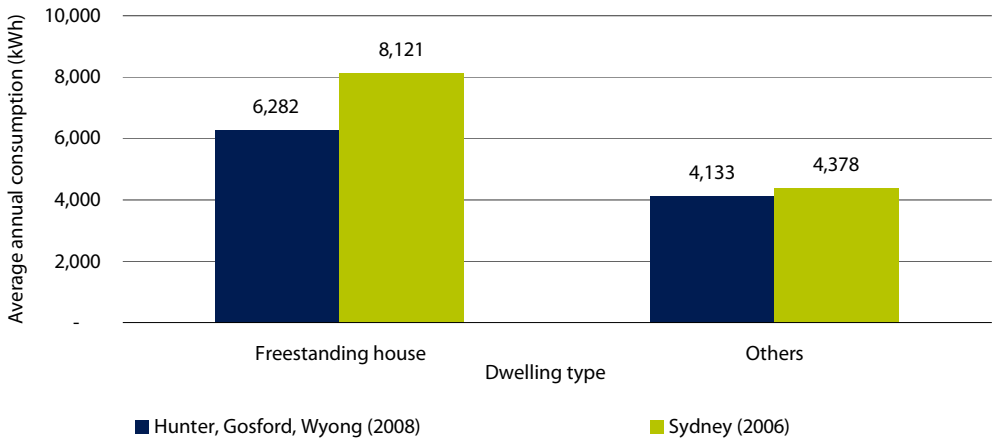
- Households with two adults and one child consume 6,925 kWh of electricity per annum, compared to 7,414 kWh for households of three adults.
- Households with two adults and two children consume 7,441 kWh of electricity per annum compared to 8,963 kWh for households of four adults.

3.2.3 Whether or not the household lives in a freestanding house

The 2008 survey found that in the Hunter, Gosford and Wyong area, households living in freestanding houses use on average 2,149 kWh (or 52 per cent) more electricity than those in other types of dwelling (eg, semi-detached homes, townhouses and units). This is likely to be because households living in freestanding houses tend to have a higher number of occupants (on average, they have 2.7 occupants compared to 1.8 for households living in other dwellings). It is also likely to be because it typically requires more energy to maintain larger premises.

The 2006 survey found a similar, but more pronounced association between electricity consumption and dwelling types in the Sydney region, where households living in freestanding houses used 85 per cent more than those in other dwelling types. The 2006 survey also found that larger, higher income households were more likely to live in freestanding houses. (See Figure 3.3.)

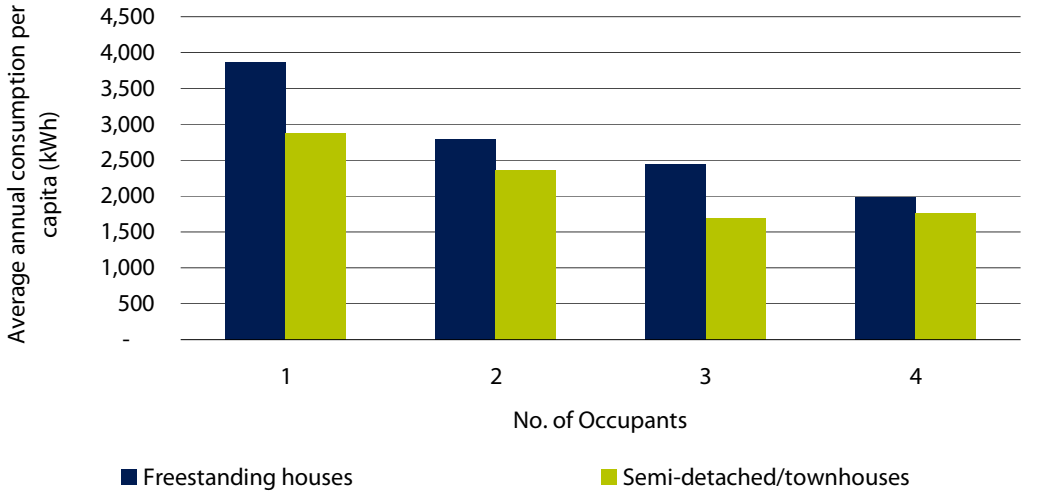
Figure 3.3 Average electricity consumption for houses and other dwelling types



To investigate whether the higher consumption of households in freestanding houses is simply due to the higher number of occupants, IPART compared the average consumption per person in households living in houses and other dwelling types (where the number of occupants was the same). The results indicate that, on average, households living in freestanding houses consume at least 13 per cent more electricity per person than those living in semi-detached homes and townhouses. The 2006 survey found a similar but more pronounced association between electricity consumption per person and dwelling types in the Sydney region.[11] (See Figure 3.4.)

[11] The 2006 survey found that for households with the same number of occupants, those living in freestanding houses used at least 30 per cent more electricity per person than those living in units. Unfortunately, in the 2008 survey the total number of households living in units was too small to provide a reliable sample.

Figure 3.4 Average electricity consumption per person, by dwelling type and household size[a,b]



a Caution is recommended in interpreting average annual consumption per person in semi detached homes and townhouses of 4 occupants given the small sample size in the 2008 survey.

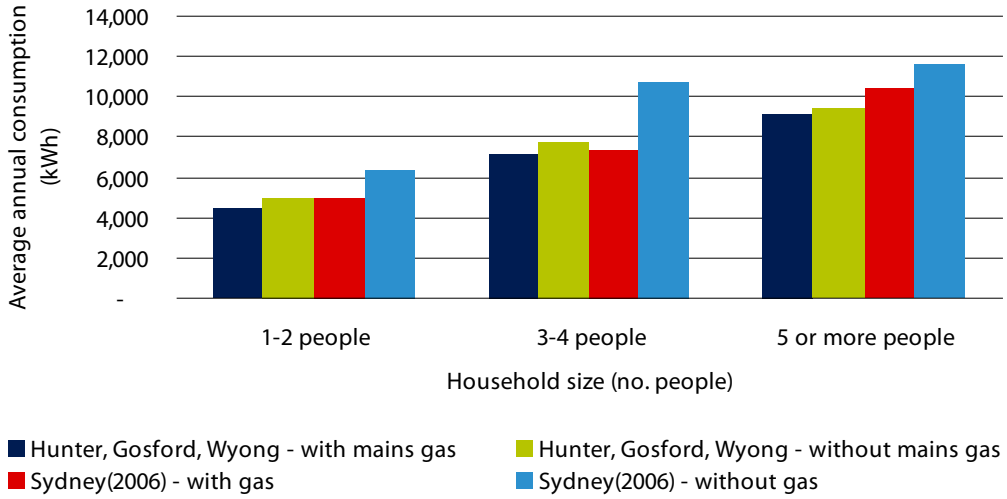
b Average consumption for units is not shown due to the small sample size.

3.2.4 Whether or not the household is connected to mains gas

The 2008 survey indicates that, on average, whether or not households have access to mains gas has little impact on their electricity consumption in the Hunter, Gosford and Wyong areas. Households connected to mains gas consume just 3 per cent less electricity than those without mains gas. The difference in consumption was greatest for households with 5 or more people, as illustrated in Figure 3.5.

In contrast, the 2006 survey found that on average in the Sydney region, households connected to mains gas consumed 24 per cent less electricity than those without mains gas. This difference between the two survey regions may be due to differences in the other characteristics of households that have mains gas in the Hunter, Gosford and Wyong areas and those that do not. For example, the households in these areas that have mains gas tend to also have higher incomes.

Figure 3.5 Average electricity consumption by household size, with and without mains gas



3.3 How do large appliances affect electricity consumption?

To better understand how the use of large appliances affects household electricity consumption, the 2008 household survey asked respondents about:

- how many large appliances they have (eg, dishwashers, washing machines, microwaves, air conditioners, water heaters and swimming pool pumps)
- how frequently they use each of these appliances
- how often they use air conditioning during summer and winter
- if they don't have an air conditioner, whether they intend to install one in coming years.

IPART analysed their responses to identify which appliances and usage patterns are associated with higher energy use.

3.3.1 Ownership and usage of appliances by high and low electricity users

Table 3.2 below provides a snapshot of appliance ownership and usage among low and high electricity users in the Hunter, Gosford and Wyong areas. It suggests the households that are high electricity users tend to own more large domestic appliances, and to use their air conditioners, dishwashers and washing machines more often than households that are low electricity users.

The proportions of low and high users with electric hot water systems in the survey areas are the same (74 per cent). However, more households depend on electric hot water in these areas than in Sydney, where the 2006 survey found that only 61 per cent of households had electric hot water heaters. This is likely to be due to the lower rate of gas connection in the Hunter, Gosford and Wyong areas.

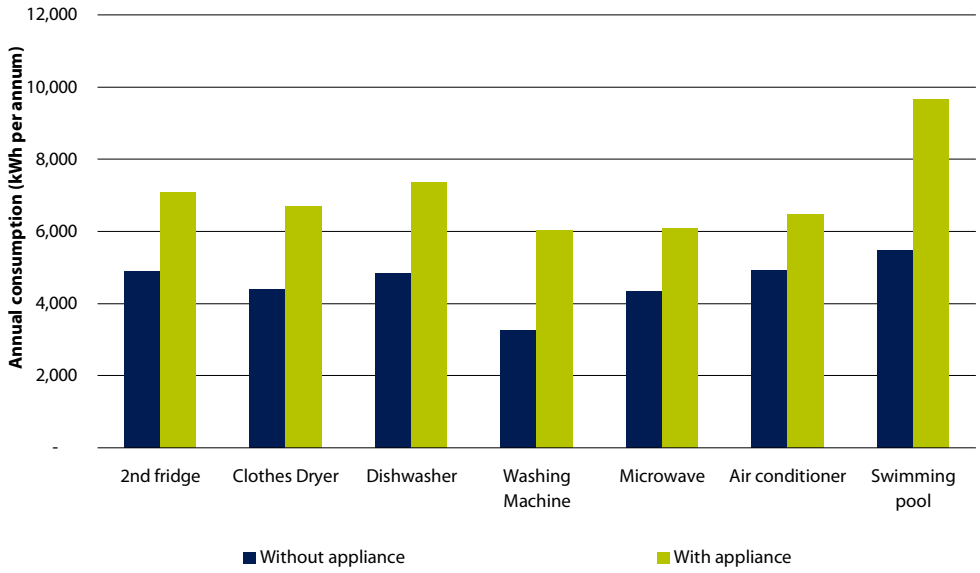
Table 3.2 Use of appliances by high and low electricity users

Low electricity users (less than 4,000 kWh per annum)	High electricity users (more than 12,000 kWh per annum)
Own an average of 3.6 large domestic appliances	Own an average of 6.0 large domestic appliances
52% have a clothes dryer;	95% have a clothes dryer;
22% have a dishwasher and	83% have a dishwasher and
31% have a second refrigerator	84% have a second refrigerator.
7% use a dishwasher 3 or more times per week	69% use a dishwasher 3 or more times per week
38% use a washing machine 3 or more times per week	80% use a washing machine 3 or more times per week
60% have an air conditioner	88% have an air conditioner
52% have a reverse cycle air conditioner	74% have a reverse cycle air conditioner
46% use air conditioners less than one day a week in summer,	25% use air conditioners less than one day a week in summer,
7% use them more than 4 days a week in summer	32% use them more than 4 days a week in summer
23% use air conditioners more than 4 days a week in winter	34% use air conditioners more than 4 days a week in winter
1% have a swimming pool	51% have a swimming pool
74% have an electric hot water system, 85% of which are off peak	74% have an electric hot water system, 87% of which are off peak

3.3.2 Relationship between appliance ownership and electricity consumption

The survey asked participants about how many of the following large appliances they own: dishwasher, washing machine, clothes dryer, air conditioner, swimming pool, microwave and second refrigerator. IPART compared the electricity consumption levels of households that own these appliances and those that do not. As Figure 3.6 shows, for each appliance, it found that on average households that own the appliance use more electricity than those that do not.

Figure 3.6 Average electricity consumption by households with and without selected appliances



Note: The sample size is very small for households without washing machines and so the average consumption figure for this variable should be interpreted with caution.

More specifically, IPART found that on average:

- Households with dishwashers consume 52 per cent or 2,518 kWh more electricity than those without dishwashers.
- Households with clothes dryers consume 53 per cent or 2,313 kWh more electricity than those without clothes dryers.
- Households with a second refrigerator consume 45 per cent or 2,185 kWh more electricity than those without one.
- While most households own a washing machine (99 per cent) and a microwave (96 per cent), those that don't use substantially less electricity.[12]
- Households with air conditioners consume 31 per cent or 1533 kWh more than those without air conditioners. Air conditioner usage is examined more closely in section 3.4.
- Households with a swimming pool consume 77 per cent or 4,192 kWh more electricity than those without pools. The difference was similarly significant in Sydney.

However, it is important to note that these differences in consumption should not be interpreted as the incremental effect of owning (or using) a particular appliance on annual energy consumption. Other household characteristics may contribute to both owning (and frequently using) an appliance and consuming more electricity – for

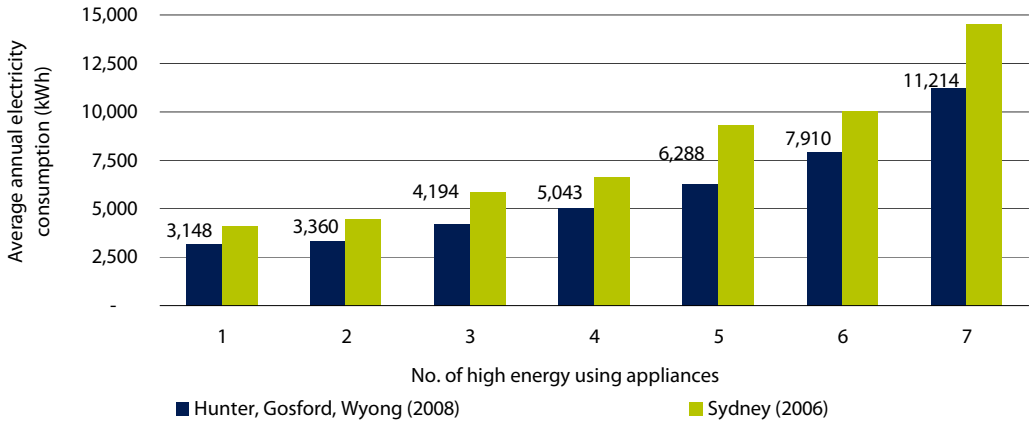
12 However the very small samples size of households without washing machines requires the average consumption data for this group to be interpreted with caution.

example, household income, dwelling type, number of occupants and the use of other appliances.

Not surprisingly, IPART also found that the more high energy using appliances a household owns, the higher their electricity consumption (Figure 3.7). For example, on average, households that own two of the appliances the survey asked about use 7 per cent more electricity than those that own one, and households that own three of these appliance use 25 per cent more than those that own two. (This significant jump in consumption is due to the increased likelihood that households that own at least three of these appliances own at least one that is a particularly high energy user, such as a dryer or air conditioner.) On average, households that own all seven of the large appliances use about 260 per cent more electricity than those that own only one of these appliances.

The 2006 survey found a similarly strong relationship between the number of large appliances within a household and the household's average electricity consumption in Sydney.

Figure 3.7 Average electricity consumption by number of large appliances



IPART also looked at the relationship between the number of large appliances a household owns and its income and number of occupants. On average, high income households tend to own more of these appliances (Figure 3.8), while households with more occupants do not necessarily have more appliances (Figure 3.9). The 2006 survey found similar relationships between the number of appliances households own and their income and number of occupants in Sydney. This suggests that, typically, a high income household will use more electricity than a low income household with the same number of occupants, because the high income household has more appliances. (The relationship between income and consumption is further discussed in Chapter 5).

Figure 3.8 Average number of large appliances by income

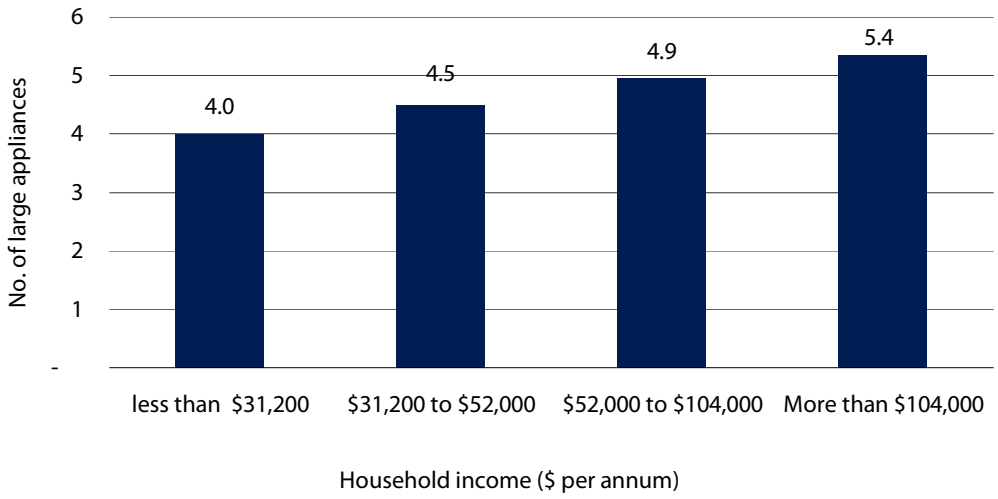
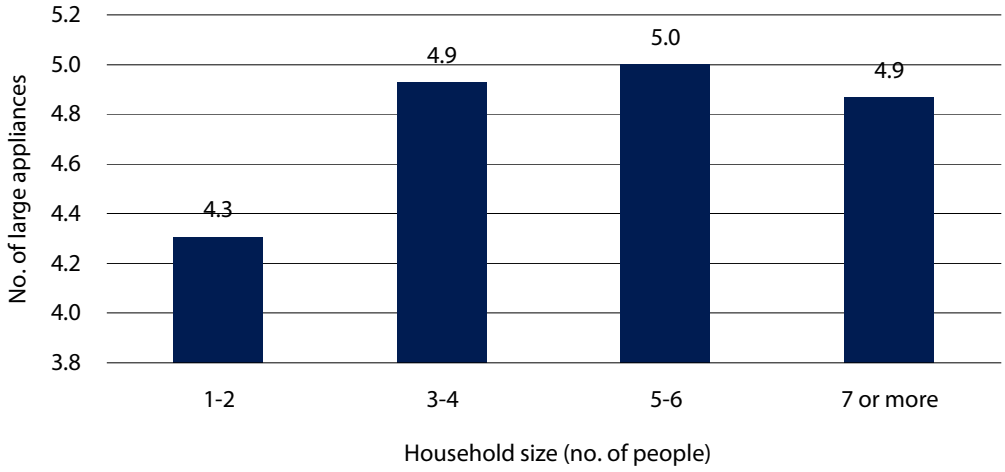


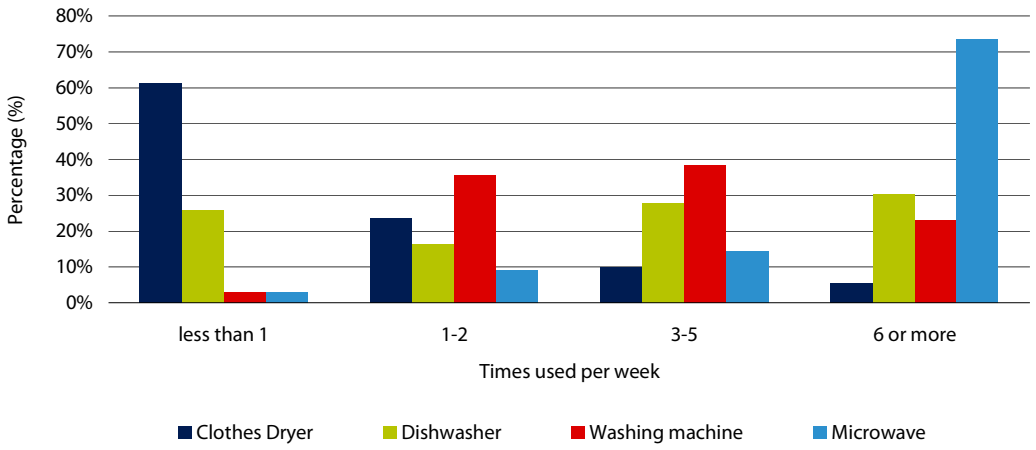
Figure 3.9 Average number of large appliances by household size



3.3.3 Relationship between appliance usage and electricity consumption

Since some households own appliances but seldom use them, the 2008 survey also asked respondents about how frequently they used the various appliances. As Figure 3.10 shows, microwaves are the most frequently used (85 per cent of households that own them use them at least three times a week), followed by washing machines (60 per cent of those that own them use them at least three times a week).

Figure 3.10 How often households use selected appliances per week (% of households who own the appliance)

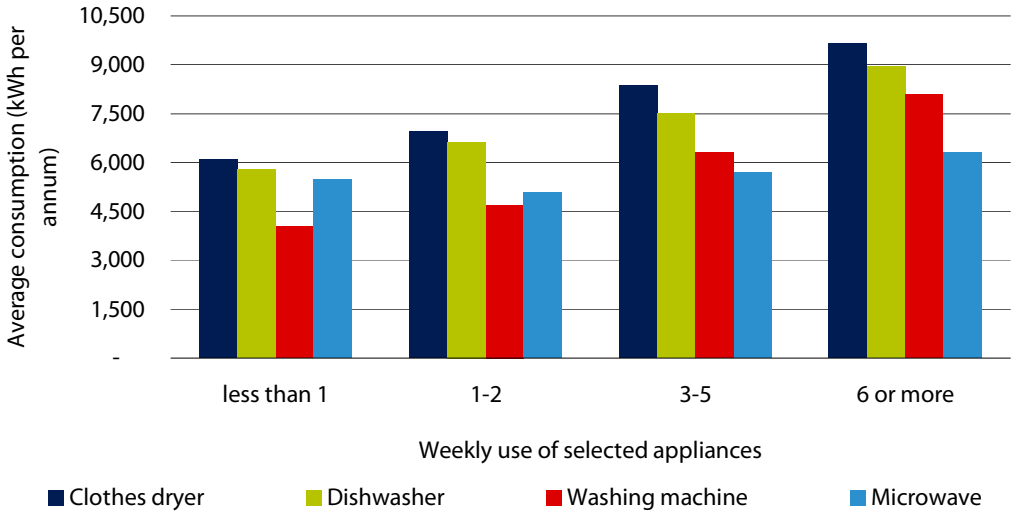


Not surprisingly, the more frequently households use their appliances the higher their electricity consumption. For example, Figure 3.11 shows that of the households that own them:

- those that use their clothes dryer at least six times a week consume an average of 3,571kWh (or 59 per cent) more electricity than those that use them less than one day a week
- those that use their washing machines three to five times a week consume an average of 2,285kWh (or 57 per cent) more electricity than those that use them less than one day a week
- those that use their dishwashers six or more times a week use an average 3,167kWh (or 55 per cent) more electricity than those that use them one or two times a week.

For microwaves there was not so clear an association between more frequent use and increased electricity consumption. This might be because microwaves tend to be used for shorter periods and use less energy than other appliances, or because many people do not turn their microwaves off at the power when not in use. Another reason may be that smaller households (who generally use less electricity) use microwaves for cooking more often than stoves and ovens, compared to larger households.

Figure 3.11 Average household electricity consumption by frequency of appliance use



3.4 How does air conditioner usage affect electricity consumption, and is usage likely to change if the price of electricity increases?

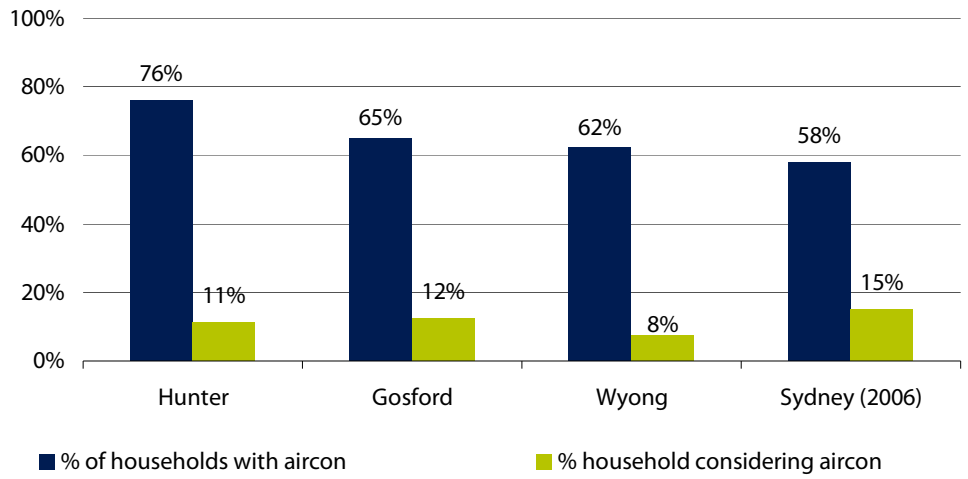
Because air conditioners are widely understood to be important contributors to daily peak loads on the electricity network, particularly in summer,[13] the 2008 survey asked participants about whether their home has air conditioning, and whether they intended to install/upgrade air conditioning in the future. For participants that indicated they have air conditioning, the survey also asked how often they use it in summer and winter (including the number of hours per day). (Unfortunately, given the nature of the survey, IPART was unable to look at households' daily air conditioning usage patterns in terms of the time of day.)

The survey found that an average of 71 per cent households across the Hunter, Gosford and Wyong areas have an air conditioner in their home. Households in the Hunter are more likely than those in Gosford or Wyong to have air conditioning (Figure 3.12). But households in all three areas are more likely to have air conditioning than those in Sydney. (The 2006 survey found that only 58 per cent of households in Sydney had air conditioners.)

In addition, an average of 11 per cent of households across the Hunter, Gosford and Wyong areas are considering installing an air conditioner, compared to 15 per cent in Sydney. Further, of households that already have an air conditioner, 6 per cent are considering upgrading their system in the Hunter, Gosford and Wyong areas, compared to 9 per cent in Sydney (2006).

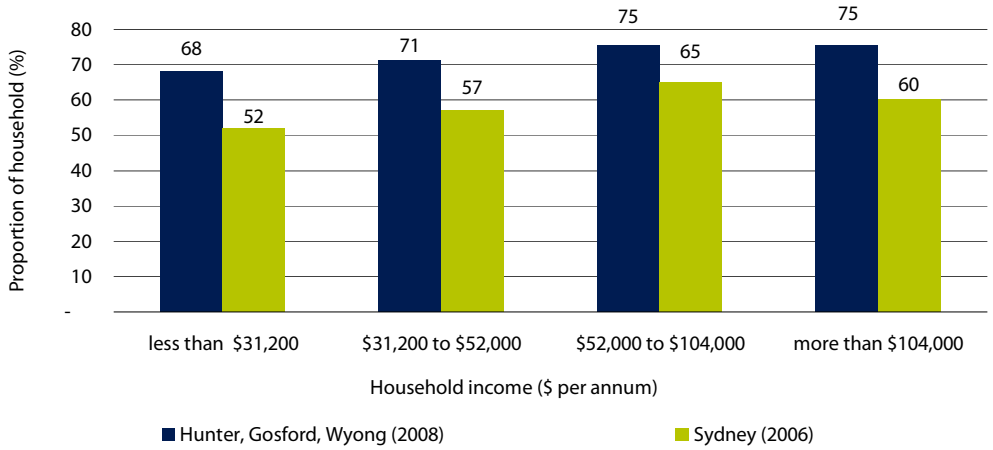
13 Professor Anthony Owen, *Report on Inquiry into Electricity Supply in New South Wales*, September 2007, chapter 4, p 20.

Figure 3.12 Proportions of households that currently have air conditioning and are considering installing air conditioning



The 2008 survey also found that households with higher incomes are more likely to have air conditioners than those with lower incomes. For example, as Figure 3.13 shows, 75 per cent of households earning more than $104,000 have an air conditioner, compared to 68 per cent of those earning more than less than $31,200. However, there is not as much variation across income categories as might be expected. The same was true in Sydney in 2006.

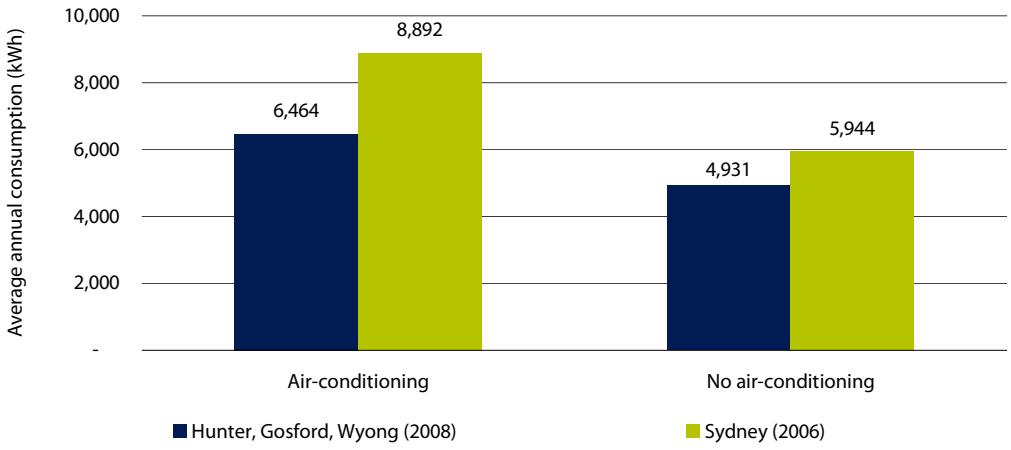
Figure 3.13 Proportion of households with air conditioners, by income



3.4.1 Relationship between owning an air conditioner and household electricity consumption

As section 3.3.2 discussed, the 2008 survey found that households with an air conditioner use 1533kWh (or 31 per cent) more electricity per year than those without. This higher electricity consumption is less pronounced than in Sydney, where the 2006 survey found that households with an air conditioner use 2,948kWh (or 50 per cent) more electricity per year than those without (Figure 3.14). However, as for other appliances, these differences in household consumption should not be interpreted as the incremental effect of having (or using) an air conditioner on annual energy consumption.

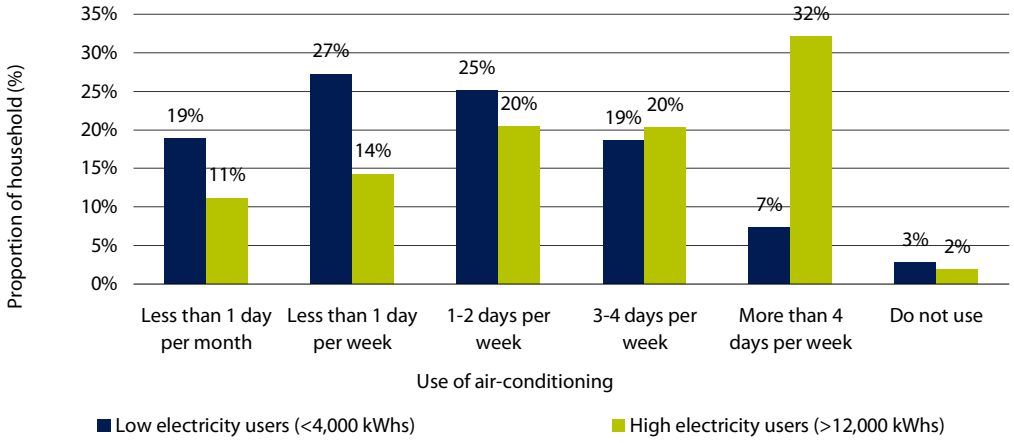
Figure 3.14 Average electricity consumption for households with and without an air conditioner



3.4.2 Relationship between using an air conditioner and electricity consumption

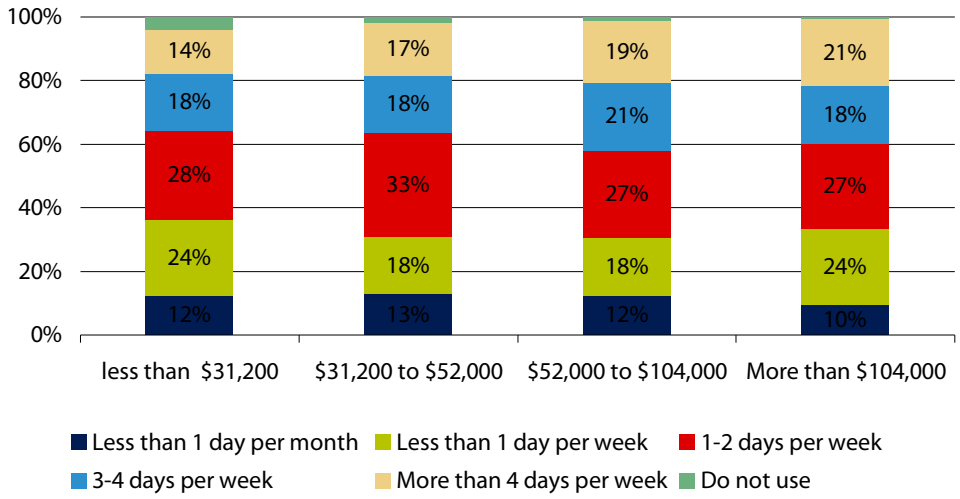
The survey found that most households that have an air conditioner indicated that they used it at least one to two days per week in summer (including 25 per cent of low users and 20 per cent of high users). High electricity users are much more likely to use their air conditioner more than four days per week in summer than low energy users, and are less likely to use it less than one day per week. (See Figure 3.15.)

Figure 3.15 How often households that have air conditioning use it in summer



Households in higher income brackets are more likely to use air conditioners at least four times a week in summer, compared to those in the lower income brackets, although a relatively large share of low income households also use their units this often (Figure 3.16).

Figure 3.16 How often households that have air conditioning use it in summer, by household income



The survey also asked households with reverse cycle air conditioners how often they use them for heating in winter. Again, high electricity users are more likely to use their air conditioner more than four days per week than low electricity users (Figure 3.17). And households with higher incomes are more likely to use their air conditioning more than four days per week (Figure 3.18). However, as in summer, the relationship between household income and frequency of air conditioner use in winter is not strong. In part, this may be because of the high incidence of retirees and pensioners on lower incomes residing in the Hunter, Gosford and Wyong areas. This

group is more likely to stay at home and use their air conditioner more frequently than younger occupants who work.

Figure 3.17 How often households that have reverse cycle air conditioning use it in winter

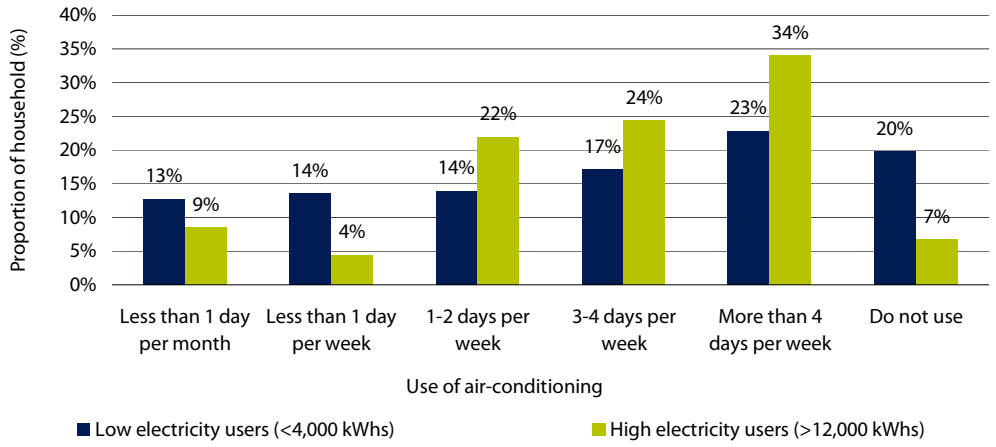
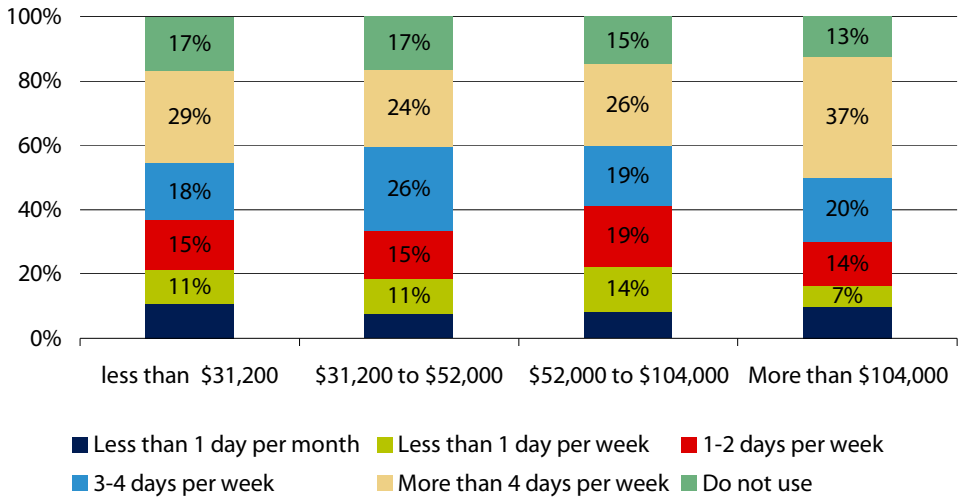
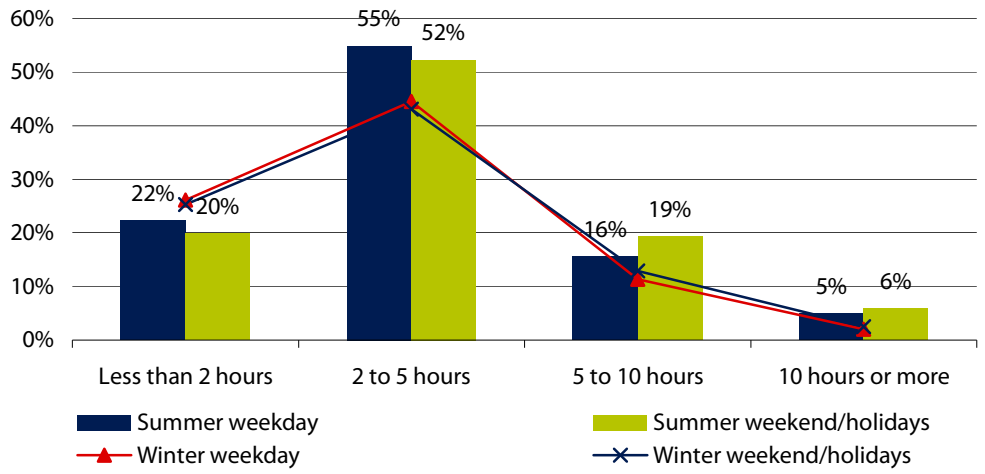


Figure 3.18 How often households that have reverse cycle air conditioning use it in winter, by household income



Most of the households with air conditioning use it for two to five hours on the days they use it, in both summer and winter (Figure 3.19). However, a significant proportion uses it for more than five hours, particularly in summer. For example, 21 per cent use it for more than five hours on weekdays in summer and 25 per cent use it for more than five hours on summer weekends.

Figure 3.19 Hours of air conditioner use during the day (proportion of households)

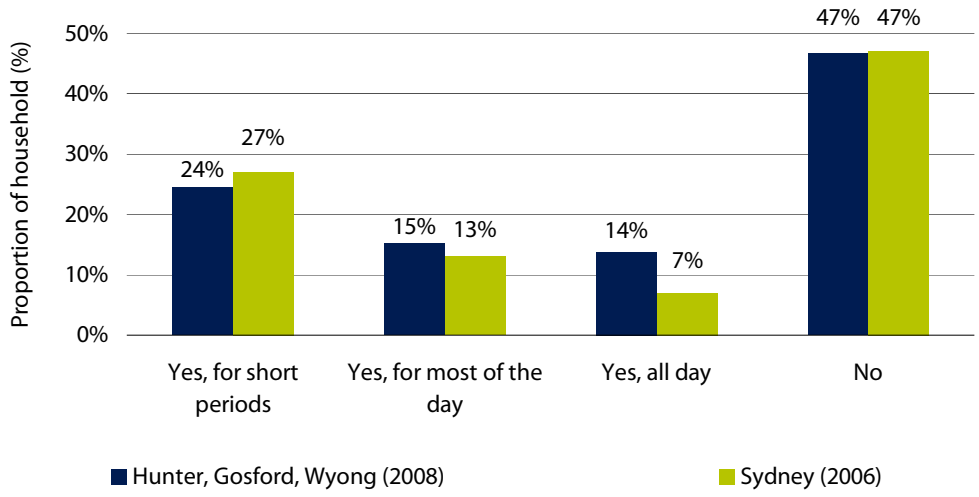


Note: Proportion of households using their air conditioner for different periods each day.

3.4.3 How is air conditioner usage likely to change if the price of electricity increases?

Like the 2006 survey of Sydney households, the 2008 survey asked participants in the Hunter, Gosford and Wyong areas if they would switch off their air conditioners on very hot days if the price of electricity was 25 per cent higher. Their responses indicate they have similar price sensitivity to this hypothetical price rise as households in Sydney. In both areas, about half of respondents would turn off their units on very hot days, even if only for short periods (Figure 3.20). However, a higher proportion of respondents in the Hunter, Gosford and Wyong areas would turn the unit off for most or all of the day.

Figure 3.20 Households indicating they will turn off their air conditioner in response to a hypothetical 25 per cent price increase on very hot days



4 Gas consumption in the Hunter, Gosford and Wyong areas

While all households use electricity, only some households use gas as a source of domestic energy. The 2008 survey asked households in the Hunter, Gosford and Wyong areas whether they use gas as a source of domestic energy, and if so, whether they use mains gas or gas stored in large cylinders on their properties.[14] The survey also asked participants what they use gas for.

While the survey data is limited, the survey indicates that:

- Less than one third of households in the Hunter, Gosford and Wyong areas are connected to mains gas, compared to nearly 50 per cent in Sydney in 2006. And a relatively high proportion of households use cylinder gas (9 per cent) compared to 4 per cent in Sydney in 2006.
- Households that use mains gas or cylinder gas tend to have higher incomes and more occupants than households without gas, and are more likely to live in freestanding houses.
- Three quarters of households with mains gas use it for at least two out of the three available purposes (cooking, hot water and space heating), and about one third use it for all three purposes. This is consistent with the findings in Sydney in 2006. Households with cylinder gas use it mainly for cooking and space heating. Very few use it as the main source of energy for hot water.

4.1 Data limitations

The data on gas usage from the survey in the Hunter, Gosford and Wyong areas are limited for two reasons. First, survey participants were not asked how much cylinder gas they use. Consequently, given the relatively high proportion of households that use cylinder gas, the data does not give a complete picture of gas consumption in the area.

Second, the sample of households that uses gas is smaller than the sample that uses electricity and water, which means the data on gas usage cannot be analysed in detail. As a consequence, the analysis presented in this chapter is less detailed than

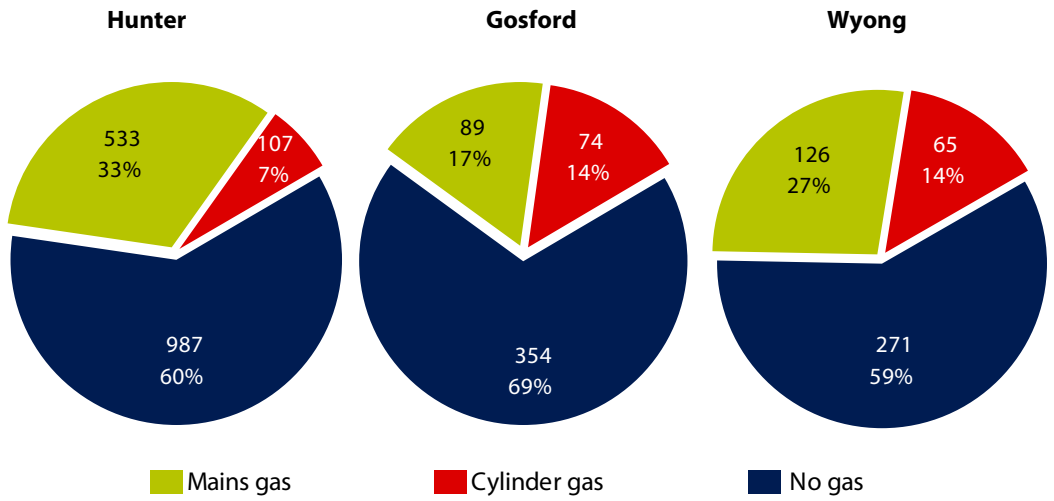
[14] Mains gas refers to gas supplied by gas distribution pipes connected to the dwelling. Cylinder gas refers to liquid petroleum gas (LPG) supplied in large cylinders that then connect to the dwelling or appliance.

the analysis on electricity or water, or the analysis provided in the report on the 2006 household survey in Sydney.

4.2 Who uses gas?

Only 29 per cent of households in the combined Hunter, Gosford and Wyong areas are connected to mains gas. Significantly higher proportions of households in the Hunter area (33 per cent) and Wyong (27 per cent) are connected to mains than in Gosford (17 per cent). In addition, significantly higher proportions of households in Gosford and Wyong use cylinder gas (both 14 per cent) than in the Hunter area (7 per cent). (See Figure 4.1.) In comparison, the 2006 survey found that 49 per cent of households in Sydney were connected to mains gas, and only 4 per cent used cylinder gas.

Figure 4.1 Number of survey respondents using gas, 2008



Households that use cylinder gas tend to be more similar in character to those with mains gas than households without gas. Compared to households without gas, households with either mains gas or cylinder gas are more likely to be larger, comprise couples or couples with children, have higher average incomes and live in freestanding houses (Table 4.1).

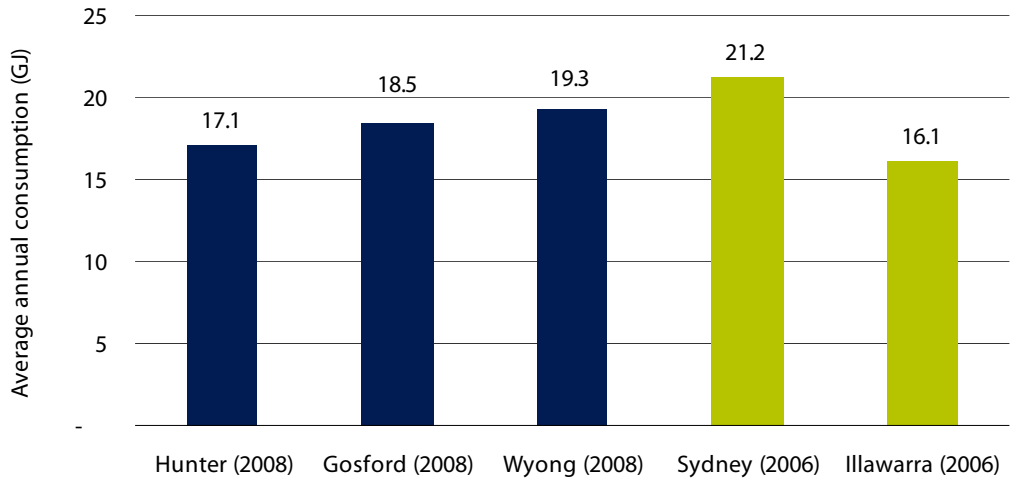
Table 4.1 Household characteristics by type of gas supply, 2008

Mains gas	Cylinder gas	No gas
On average have 2.8 people in the household	On average have 2.7 people in the household	On average have 2.4 people in the household
19% are single person households	12% are single person households	27% are single person households
35% have incomes below $31,200 pa and 13% have incomes exceeding $104,000	36% have incomes below $31,200 pa and 12% have incomes exceeding $104,000	47% have incomes below $31,200 pa and 7% have incomes exceeding $104,000
91% live in freestanding houses	96% live in freestanding houses	86% live in freestanding houses

4.3 Average mains gas consumption

Households with mains gas in the Hunter area use an average 17.1 GJ per year, which is somewhat lower than in Gosford (18.5 GJ) or Wyong (19.3 GJ). Consumption in all these areas is lower than in the Sydney metropolitan area in 2006, (21.2 GJ) and higher than in the Illawarra (16.1 GJ). (See Figure 4.2.)

Figure 4.2 Average mains gas consumption by region



Note: The average consumption for Gosford must be interpreted with caution due to the small sample size.

4.4 How do household characteristics affect mains gas consumption?

Of the households that use mains gas in the Hunter, Gosford and Wyong areas:

- 25 per cent are considered low users (consuming less than 10 GJ per annum)
- 36 per cent are considered moderate users (consuming 10 to 20 GJ per annum)
- 39 per cent are considered high users (consuming more than 20 GJ per annum).

Table 4.2 provides a snapshot of the characteristics of low, moderate and high usage households.[15] In general, households that use more than 20 GJ of mains gas per annum are more likely to have a higher number of occupants, comprise couples or families, and live in freestanding houses. These findings are consistent with those for Sydney in 2006. A high proportion of low users (less than 10 GJ) live in the Hunter area.

Table 4.2 Snapshot of household characteristics by volume of mains gas consumed, 2008

Low users (less than 10 GJ per annum)	Medium users (10 – 20 GJ per annum)	High users (more than 20 GJ per annum)
On average have 2.1 people in the household	On average have 2.5 people in household	On average have 3.5 people in household
39%[a] are single person households and 25% are couples with children	20% [a] are single person households and 34% are couples with children	6%[a] are single person households and 63% are couples with children
88% live in houses	90% live in houses	94% live in houses
78% live in Hunter	70% live in Hunter	71% live in Hunter

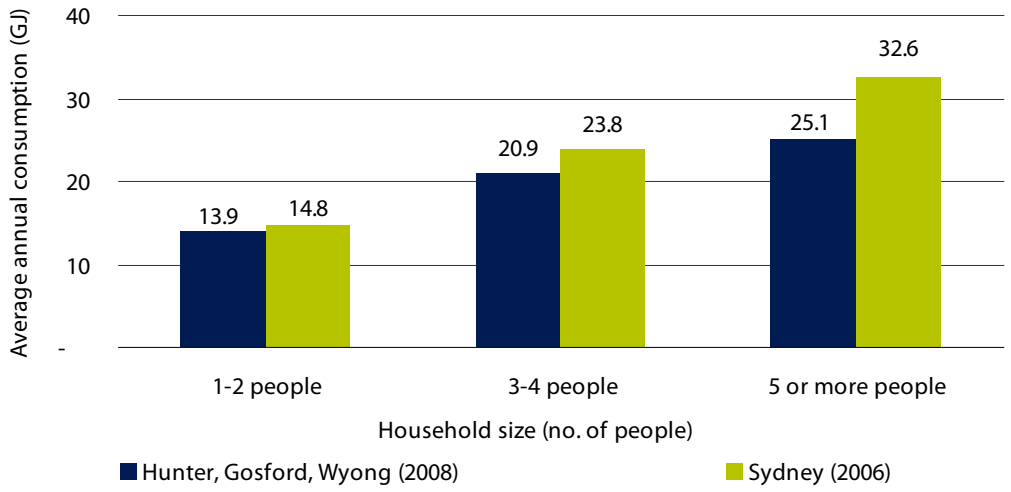
a These values should be interpreted with caution due to the low number of observations.

The survey found there is a clear relationship between household size and gas consumption. As Figure 4.3 shows, households with five or more occupants[16] consume 11.2 GJ (or 80 per cent) more than households with just one or two occupants. This difference is lower than in Sydney, where households with five or more occupants consume 17.8 GJ (or 120 per cent) more gas than households with one or two occupants.

15 These categories differ from those used for the 2006 Sydney survey due to the small number of observations in the lowest (up to 5GJ) and highest (more than 35GJ) categories. Table E.4 in Appendix E presents the results of the survey in the four consumption categories used for the Sydney 2006 report, and Table E.5 presents the results of selected questions in the three consumption categories used in this chapter.

16 Note that the average consumption values for households with 5 or more occupants need to be interpreted with care as the survey observations were generally low for this category.

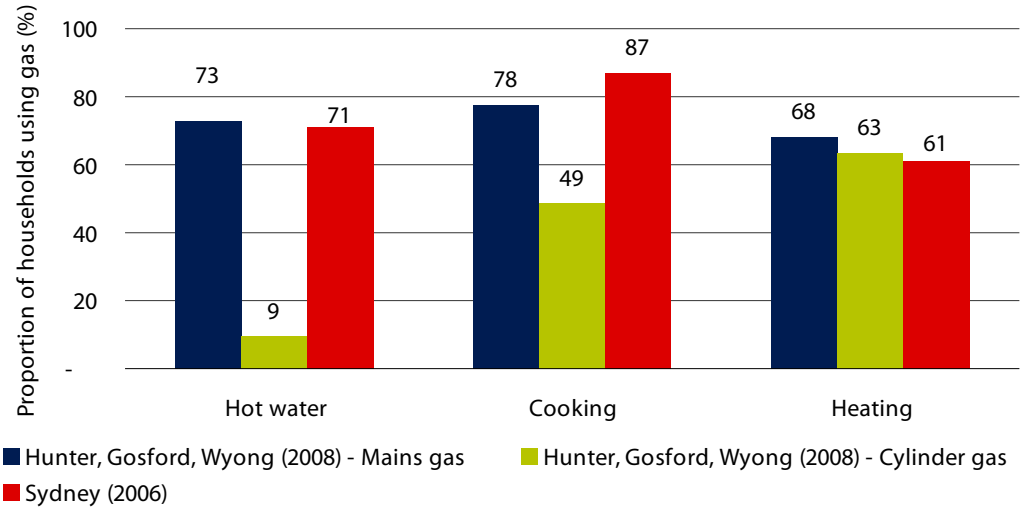
Figure 4.3 Average mains gas consumption by household size



4.5 What do households use mains and cylinder gas for?

The survey asked households that use main gas or cylinder gas whether they use it for space heating, water heating and/or cooking. The findings indicate that 78 per cent of these household use gas for cooking, while 73 per cent use it as the main energy source for water heating.[17] A lower proportion of households (68 per cent) use gas for space heating. (See Figure 4.4.)

Figure 4.4 Proportion of households with gas that use it for cooking, hot water and space heating



Note: The values are to be interpreted with care due to the small number of observations for some of the categories.

17 Respondents were asked whether they use gas for cooking or space heating, either as their main source or as a secondary source. However, respondents using hot water were only asked whether they use gas as their *main* source of energy.

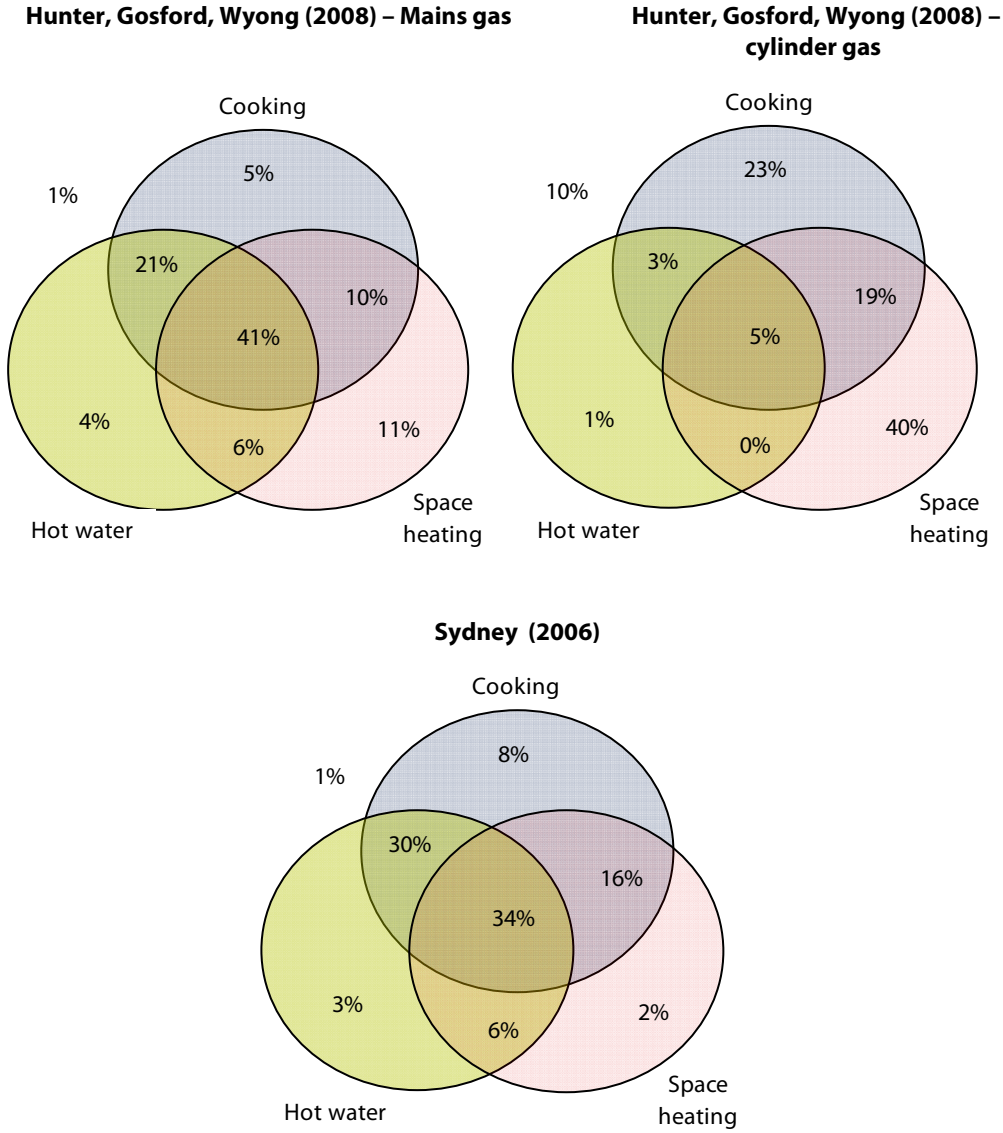
Figure 4.5 and Table 4.3 show the proportions of households with mains or cylinder gas in the Hunter, Wyong and Gosford areas that use it for one, two or three purposes, and compare these figures with those for households connected to mains gas in Sydney (2006).

Most households with mains gas in the Hunter, Gosford and Wyong areas use it for at least two purposes (79 per cent). Relatively few households use it for only one purpose (20 per cent). These proportions are similar to those in Sydney in 2006.

Most households with cylinder gas in the Hunter, Gosford and Wyong use it for space heating (64 per cent). A smaller proportion uses it for cooking (50 per cent) and only 9 per cent use it as the main source for hot water. Just 5 per cent of these households use cylinder gas for all three purposes (space heating, cooking and water heating). Ten per cent of respondents indicated that they have cylinder gas but do not use it for cooking, heating or as the main source of energy for hot water. Therefore, it seems likely that they use cylinder gas as a secondary energy source for hot water.[18]

[18] See footnote 17.

Figure 4.5 Use of gas as main energy source for cooking, heating and hot water[a,b]



a: The values for the Hunter, Gosford and wyong areas should be interpreted with care due to the small number of observations in some categories.

b The percentages outside the circles represent households who use gas for purposes other than cooking, space heating or as the main source of energy for hot water. Presumably most of these households use gas as a secondary source for hot water (see footnote 17).

Table 4.3 Proportion of households with gas that use it for different purposes (%)

	Hunter, Gosford and Wyong (2008) - Mains gas	Hunter, Gosford and Wyong (2008) - Cylinder gas	Sydney (2006) - Mains gas
Cooking only	5	23	8
Hot water only[a]	4	1	3
Space heating only	11	40	2
Total one purpose	20	64	13
Cooking and hot water[a]	21	3	30
Cooking and space heating	10	19	16
Hot water[a] and space heating	6	0	6
Total two purposes	37	22	52
Three purposes (cooking, hot water[a] and space heating)	41	5	34
Other, including secondary source for hot water[b]	1	10	1
Total[c]	100	100	100

a Mains source for hot water.

b Respondents using hot water were only asked whether they use gas as their main source of energy.(see footnote 17).

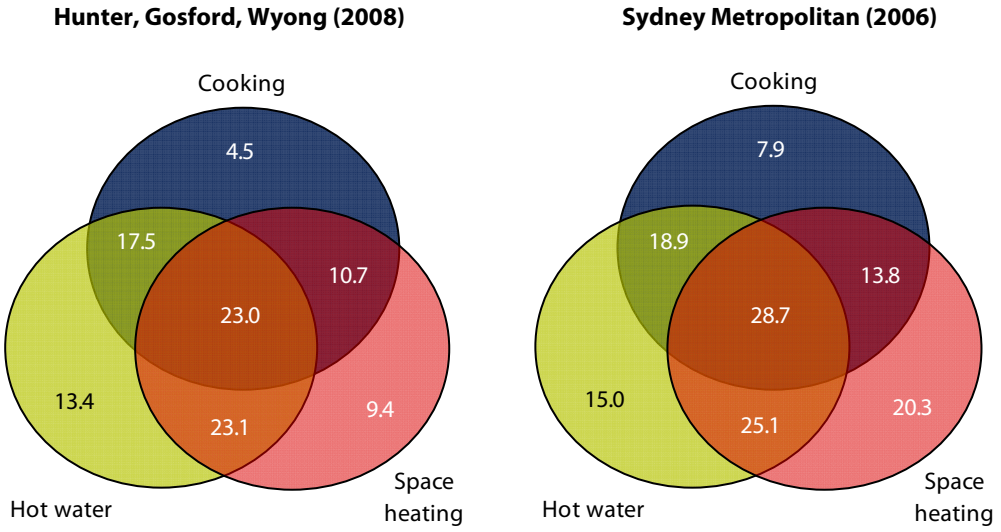
c Totals may not add to 100 due to rounding.

Figure 4.6 shows the average household consumption of mains gas by what gas is used for in the Hunter, Gosford Wyong areas and Sydney. It indicates that on average, households that use mains gas for cooking only consume the least amount (4.5 GJ) per year, while those that use it for water heating only and space heating only use more gas per year (13.4 GJ and 9.4 GJ respectively).

Households that use mains gas for space heating and hot water use an average of 23.1 GJ per annum. Households that use mains gas for all three purposes have a similar level of consumption (23.0 GJ).

These results are broadly similar to those for Sydney in 2006, except mains gas for space heating only was associated with much higher consumption (20.3 GJ compared to 9.4 GJ in the Hunter, Gosford and Wyong areas).

Figure 4.6 Average gas consumption for cooking, heating and hot water (GJ per annum)



Note: The values for the Hunter, Gosford and Wyong areas should be interpreted with care due to the small number of observations in some categories.

5 Water consumption in the Hunter, Gosford and Wyong areas

The 2008 survey asked households in the Hunter, Gosford and Wyong areas a range questions about their water usage. For example, the survey asked about the number of water using amenities and appliances households own, how often they use them, and whether they made use of alternative water sources such as bore water, grey water[19] or rainwater tanks. Households in the Hunter area, which was the only area where no water restrictions applied at the time of the survey, were also asked about their outdoor water use. In addition, the survey asked households to indicate the importance of various aspects of their water supply service, and whether they would be prepared to pay more for fewer supply interruptions.

IPART's analysis of the survey results indicates that:

- The average water consumption of households in Gosford and Wyong is substantially lower than that of households in the Hunter area.[20] However, average water consumption in all three areas is lower than in Sydney in 2006.
- The household characteristics that most influence average water consumption seem to be the number of household occupants, household income, and the dwelling type and land size.
- The water usage behaviours that most influence average water consumption seem to be whether or not they own and frequently use indoor amenities and appliances (such as dishwashers, washing machines, and spas), whether or not they have a swimming pool, and whether or not they water their garden or use water for other outdoor purposes.
- Compared to the Hunter area, households in Gosford and Wyong make far greater use of alternatives to mains water, such as bore water, grey water and water from rainwater tanks. On average, households that use these alternatives use less mains water than households that do not, particularly if they use this water both indoors and outdoors.

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19 Grey water refers to wastewater generated from domestic processes such as dish washing, laundry and bathing (*http://en.wikipedia.org/wiki/Greywater*). For the purposes of this survey, using grey water means using recycling this wastewater on the property.

20 Throughout the report, average consumption refers to the consumption of mains water only. The survey did not collect any information on the volume of consumption from bore water, grey water or rain water tanks.

- The aspects of a water supply service the households in the Hunter, Wyong and Gosford areas consider most important are continuity of water supply, water quality and good environmental management. Further, only a relatively small minority of respondents indicated that they would be willing to pay more to reduce supply interruptions.

The sections below discuss these findings in more detail. In interpreting the findings, it is important to note that the Hunter, Gosford and Wyong areas are supplied by different water suppliers, and face different water supply conditions. The Hunter area is supplied by the Hunter Water Corporation. Unlike the other areas, and the Sydney area, the Hunter has not experienced water shortages in recent years. As a consequence, it is the only area in which water restrictions have not applied.

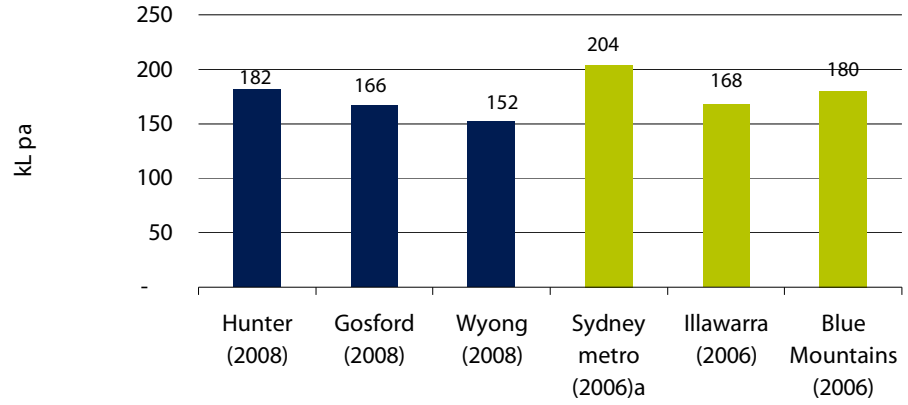
The Gosford and Wyong areas are supplied by the Gosford-Wyong Councils' Water Authority.[21] The councils jointly manage the Water Authority, each supplying households in their own council area. Both areas have experienced water shortages and have had water restrictions in place since February 2002. Level 3 restrictions applied at the time of the 2008 survey (see Box 5.1). In addition, the councils have taken further steps to reduce water consumption from the town supply (ie, mains water), including the introduction of incentives to encourage water saving technologies, extensive media coverage of the drought and education campaigns.

5.1 Average water consumption

Average annual household consumption in the Hunter area (182 kL) is higher than in Gosford (166 kL) or Wyong (152 kL). (See Figure 5.1). Households in all three of these areas tend to use less water than those in metropolitan Sydney,[22] where average consumption was 204 kL in 2006. Average consumption levels in the Hunter, Gosford and Wyong areas are more consistent with average usage in the Blue Mountains and Illawarra, probably because of the greater similarity in demographic characteristics, particularly in relation to household size (see Chapter 2).

21 http://gwcwater.nsw.gov.au/about_us/about_us_index.htm
22 The Sydney 2006 survey area excluding Blue Mountains and Illawarra.

Figure 5.1 Average household water consumption (kL pa)



a Excluding Illawarra and Blue Mountains.

Residents of the greater Sydney area have faced water restrictions since 2003 (see Box 5.1). As a result, average residential water consumption per household fell from 250 kL in 2003 to 183 kL in 2008.[23]

While no water restrictions have been introduced in the Hunter area[24], average consumption in this area is similar to that in Sydney in 2008. This underlines the importance of demographic and socio-economic factors as determinants of water consumption.

[23] Calculated from information provided by Sydney Water.
[24] Unlike the Wyong and Gosford areas where water restrictions have been introduced.

Box 5.1 Water restrictions in Gosford, Wyong and Sydney

Gosford and Wyong

Water restrictions have been applied to households in Gosford and Wyong since February 2002. Level 3 or 4 restrictions have been in place since June 2006. Level 3 restrictions applied at the time of the survey.

Under level 3 restrictions, households may not use mains water to water gardens except with watering cans or buckets; may not wash external surfaces such as driveways or courtyards; may wash cars, boats etc with buckets or hoses with trigger nozzles; and may not top up or fill private swimming pools.

For households with internally connected rainwater tanks, restrictions are relaxed on watering gardens and filling or topping up private swimming pools.

Sydney

Sydney Water has imposed water restrictions since 1 October 2003. Level 3 water restrictions were in place at the time of the 2006 survey. In June 2008 some of the restrictions were relaxed.

Under Sydney Water's level 3 restrictions applying since June 2008, hand-held hosing of lawns and gardens and drip irrigation is allowed only Wednesdays and Sundays before 10 am and after 4 pm; external surfaces such as driveways or courtyards may not be hosed ; cars, boats and caravans and external walls and windows of houses may be washed with a hose if a trigger nozzle is fitted; and permits are required to fill new or renovated swimming pools bigger than 10 ML.

Sources: Gosford/Wyong Councils' Water Authority website and Sydney Water website; http://www.gosford.nsw.gov.au/water_and_sewer/restrictions.html http://www.sydneywater.com.au/Savingwater/WaterRestrictions/

5.2 How do household characteristics affect water consumption?

Of the surveyed households in the Hunter, Gosford and Wyong area:

- 26 per cent are considered low water users (consuming up to 100 kL per annum)
- 62 per cent are considered moderate water users (with 42 per cent consuming 100 to 200 kL and 20 per cent using 200 to 300 kL per annum)
- 12 per cent are considered high water users (consuming more than 300 kL per annum).

Table 5.1 provides a snapshot of the characteristics of high use and low use households in the Hunter, Gosford and Wyong areas in 2008. The results indicate that high water users have more household occupants, are more likely to live in freestanding houses and on large blocks of land, consist of couples with children, have higher incomes and live in the Hunter area. Low users are more likely to use bore water, grey water or water from rainwater tanks, and be retirees or pensioners.

Table 5.1 Snapshot: Household characteristics of high and low water users

Low water users (less than 100 kL per annum)	High water users (more than 300 kL per annum)[a]
1.6 people per household	3.9 people per household
84% are single person households or couples with no children; 8% are couples with children	19% are single person households or couples with no children; 67% are couples with children
65% of respondents are aged over 65	9% of respondents are aged over 65
64% of households have incomes below $31,200 per year, 3% of households have income exceeding $104,000 per year	20% of households have incomes below $31,200 per year, 20% of households have income exceeding $104,000 per year
88% live in a freestanding house	97% live in a freestanding house
17% of households in houses live on small blocks of land (less than 500 m^2), 13% live on large blocks of land (more than 900 m^2)	7% of households in houses live on small blocks of land (less than 500 m^2), 23% live on large blocks of land (more than 900 m^2)
59% live in the Hunter area, 21% live in Gosford and 20% live in Wyong	76% live in the Hunter area, 15% live in Gosford and 9% live in Wyong
12% use bore water, 30% use grey water and 23% have rainwater tanks	5% use bore water, 23% use grey water and 14% have rainwater tanks

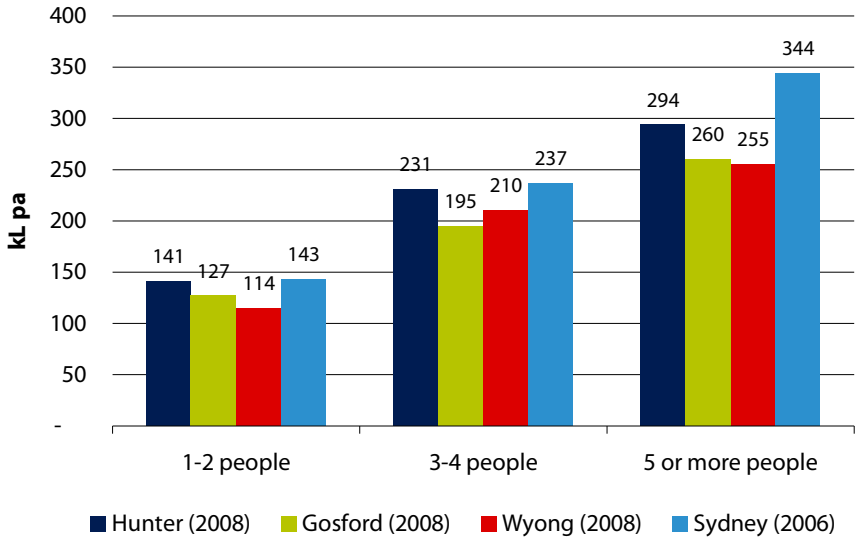
a This category refers to households who use between 300 kL and 500 kL per annum. Less than 2 per cent of households in these areas use more than 500 kL per annum, and the sample size in this category is too small to provide reliable results.

The relationship between consumption and household size, dwelling type, land size and home ownership status are examined in more detail below. The use of bore water, grey water and water from rainwater tanks is discussed in section 5.4.

5.2.1 Household size

On average, households with more people use more water. For example in the Hunter area, households with five or more people use 294 kilolitres per year, over twice the amount of households with only one or two people (141 kL). This is consistent with the findings of the 2006 survey in Sydney (Figure 5.2.)

Figure 5.2 Average water consumption by household size (kL pa)

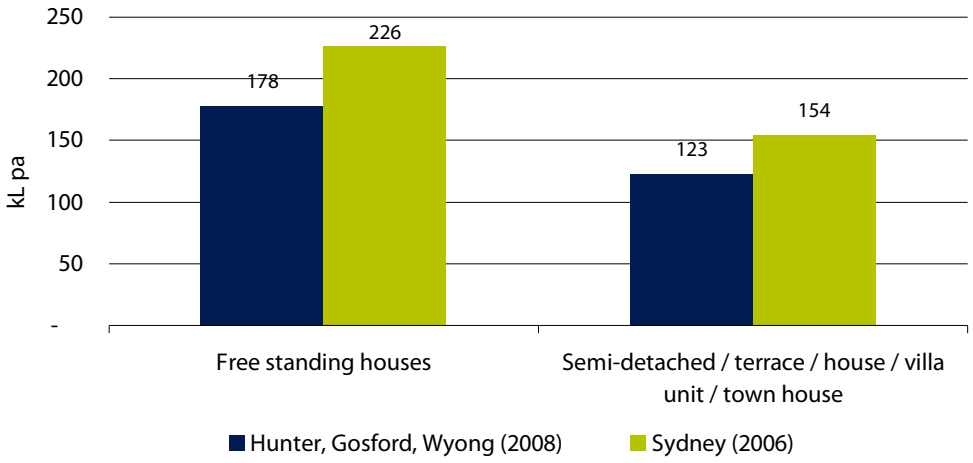


5.2.2 Dwelling type

Households living in freestanding houses tend to consume more water than those living in semi-detached dwellings, such as terrace houses, villa units or town houses. In the Hunter, Gosford and Wyong areas, households in freestanding houses consume on average 55 kL (or 45 per cent) more water than those living in semi-detached dwellings.[25] Again, this is consistent with the findings of the 2006 survey in Sydney (Figure 5.3).

25 The combined area is used for analysis purposes because there are only a small number of semi detached houses or townhouses in Gosford and Wyong.

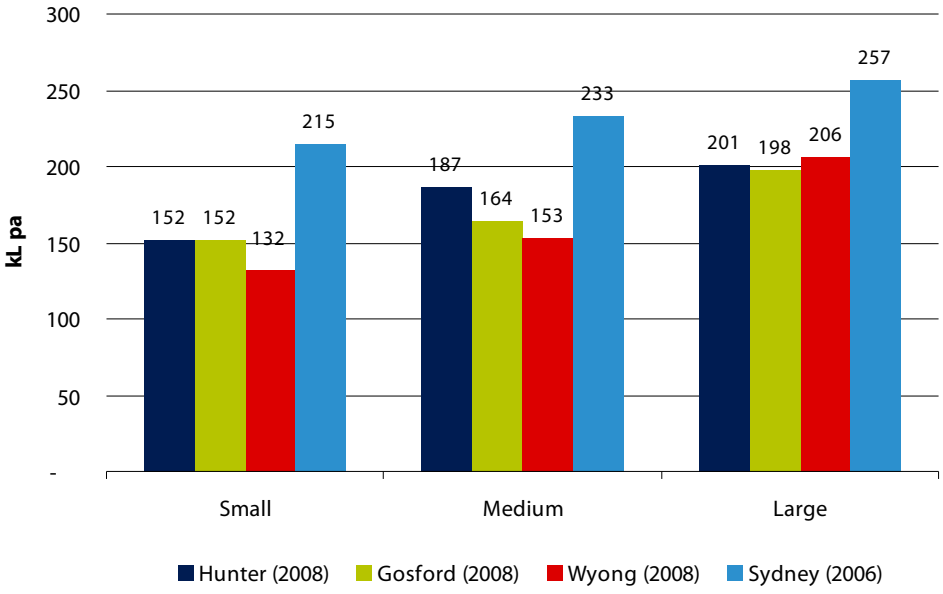
Figure 5.3 Average household water consumption by dwelling type (kL per year)



5.2.3 Land size

Average water usage is consistently higher for households with houses on larger blocks of land. For example, of households that live in freestanding houses in the Hunter area those that have large blocks of land (greater than 900m^2) consume 50 kL (or 33 per cent) more water than with small blocks (less than 500 m^2). (See Figure 5.4). This difference in consumption is somewhat larger than the difference in Sydney in 2006 (where households with large blocks of land consumed 42 kL or 20 per cent more than those on small blocks). This is likely to be due to the fact that water restrictions in Sydney reduced outdoor water use.

Figure 5.4 Average water consumption by land size (freestanding houses only, kL pa)



5.2.4 Home ownership status

The 2003 household survey in Sydney found that renters in public housing used significantly more water than other households. By 2006, this was no longer the case, largely in response to active measures taken by Sydney Water to fix leaks and install water saving devices. At the same time, the Department of Housing began billing tenants for individually metered water consumption.[26]

The 2008 survey found that households in the Hunter, Gosford and Wyong areas that are renting public housing use only slightly more water than those who are renting privately, and less than those who are buying their own home. This is broadly consistent with the pattern in Sydney in 2006 (Figure 5.5).

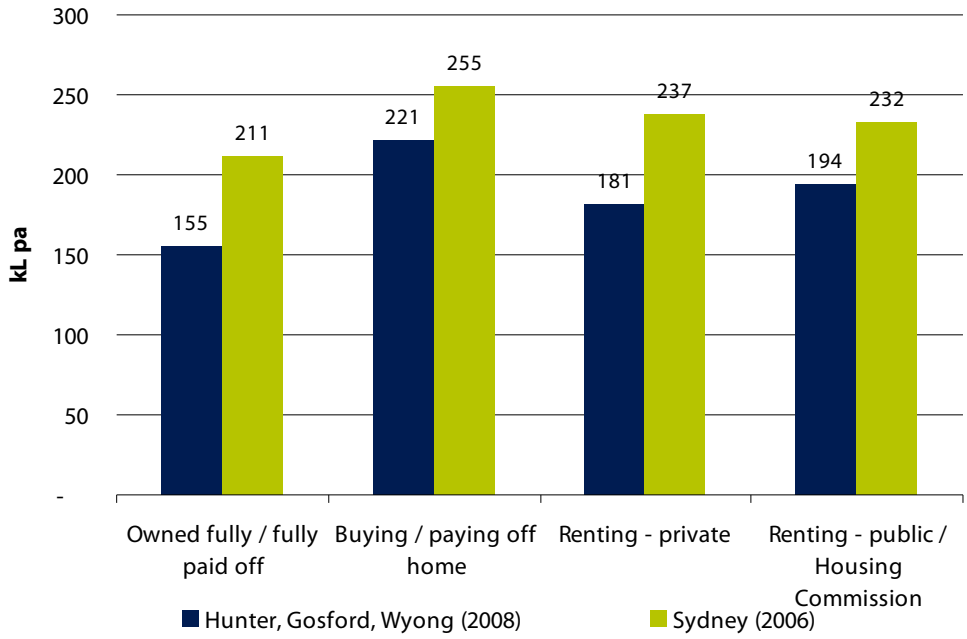
IPART's analysis of water usage by home ownership status shows that households that are in the process of paying off their home consume more water than those that have paid off their home or those who are renting. This is true for households in the Hunter, Gosford and Wyong areas, as well as in the greater Sydney area in 2006. Households that have paid off their homes consume the least water (155 kL in the Hunter, Gosford and Wyong area).

It is likely that a number of household characteristics that affect average water use are also linked to ownership status. For example, households that have paid off their homes are likely to include a higher proportion of older couples and singles and

26 IPART, *Residential energy and water use in Sydney, the Blue Mountains and Illawarra. Results from the 2006 household survey*. Electricity, Gas and Water – Research Paper 29, 2007, pp 35-36.

fewer families with children than those who are paying off their homes. Therefore, households who own their own home are likely to have fewer occupants than households paying off a home, and so use less water.

Figure 5.5 Average water consumption by home ownership status (houses only, kL pa)



5.3 What do households use water for?

Households use water for a wide range of purposes. Some of these can be considered basic, or non-discretionary, in the sense that they are required for reasons of health, subsistence and hygiene. This includes drinking, bathing, cooking, cleaning, washing and toilet flushing. Discretionary usage includes consumption for non-essential purposes such as watering gardens, washing cars, cleaning driveways and filling swimming pools. It can also include consumption in excess of the amount necessary for health and hygiene, such as long showers.

To better understand what water is used for, the 2008 survey asked participants about large water using amenities such as swimming pools, spa baths and appliances including dishwashers and washing machines. The results indicate that high water users have more water using amenities and appliances, and in particular are much more likely to have a dishwasher and a swimming pool than low users. They are also likely to use their dishwashers and washing machines more frequently.

Table 5.2 Snapshot: Usage characteristics of high and low water users

Low water users (less than 100 kL per annum)	High water users (more than 300 kL per annum)[a]
Have an average of 4.5 indoor water-using amenities	Have an average of 5.2 indoor water-using amenities
4% have swimming pools	27% have swimming pools
31% have a dishwasher	62% have a dishwasher
39% of those who own a dishwasher use it less than once a week, 37% use it three times a week or more	17% of those who own a dishwasher use it less than once a week, 73% use it three times a week or more
68% of households use a washing machine less than three times per week, and 31% use a washing machine three or more times per week	9% of households use a washing machine less than three times per week, and 91% use a washing machine three or more times per week
14% of households in the Hunter area use sprinklers to water their gardens	44% of households in the Hunter area use sprinklers to water their gardens
6% of households in the Hunter area use water to wash a paved yard	24% of households in the Hunter area use water to wash a paved yard

[a] This category refers to households who use between 300 kL and 500 kL per annum. Less than 2 per cent of households in these areas use more than 500 kL per annum, and the sample size in this category (36) is too small to provide reliable results.

Note: Amenities and appliances include toilets, showers, baths, spas, dishwashers and washing machines.

The relationship between consumption and the number of indoor amenities, dishwasher ownership, swimming pool ownership and garden watering are examined in more detail below.

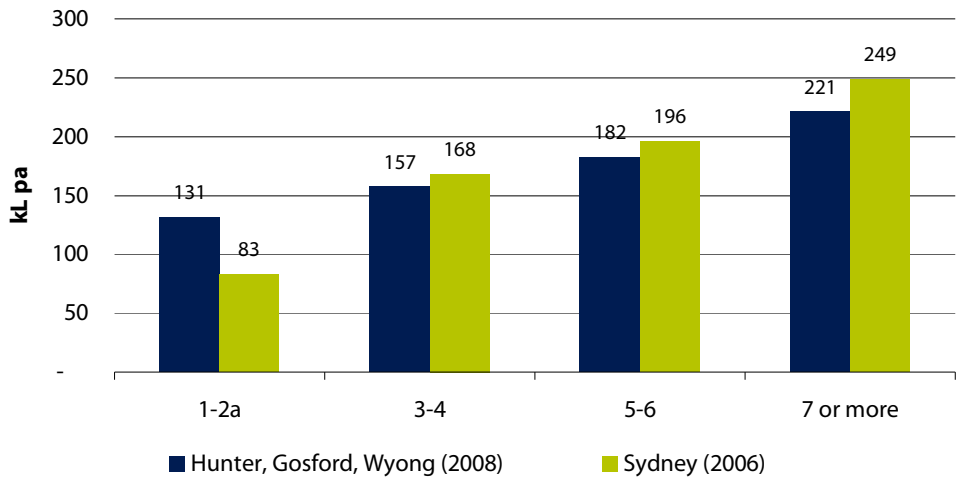
5.3.1 Number of indoor amenities and appliances

Households with a large number of water using amenities and appliances[27] consume more water than those with fewer of these amenities and appliances. For example, households in the combined Hunter, Gosford and Wyong areas[28] with more than seven indoor water using amenities and appliances consumed 64 kL (or 41 per cent) more water than those with three to four amenities and appliances. A similar pattern was found in the 2006 Sydney household survey. (See Figure 5.6.)

27 The indoor amenities and appliances included in the survey are toilets, showers, baths, baths with spa jets, dishwashers and washing machines.

28 The combined area is used for analysis purposes due to the small number of observations in some categories.

Figure 5.6 Average consumption by number of indoor water using amenities



a Data for households with 1-2 amenities need to be interpreted with caution due to the low number of observations.

Note: Amenities and appliances include toilets, showers, baths, baths with spa jets, dishwashers and washing machines.

Dishwasher ownership and frequency of use

Dishwasher ownership is associated with higher water consumption. For example households in the Hunter area that have a dishwasher use on average 50 kL (or 32 per cent) more water per year than those without a dishwasher (Figure 5.7).

Households that use their dishwashers more frequently also have higher water consumption. For example, households in the Hunter area that use their dishwashers six or more times a week consume 76 kL (or 43 per cent) more water than those using their dishwasher only once or twice a week (Figure 5.8).

However, as Chapter 3 noted in relation to air conditioners and dishwashers, these differences in consumption should not be interpreted as the incremental effect on average water consumption of installing or using a dishwasher. Other household characteristics (such as household size, dwelling type and the number of other appliances) may influence whether a household has a dishwasher, uses it more frequently and consumes more water. In particular, households that use their dishwashers frequently are likely to have more occupants than infrequent users, and to comprise of couples with children.

Figure 5.7 Average water consumption by dishwasher ownership

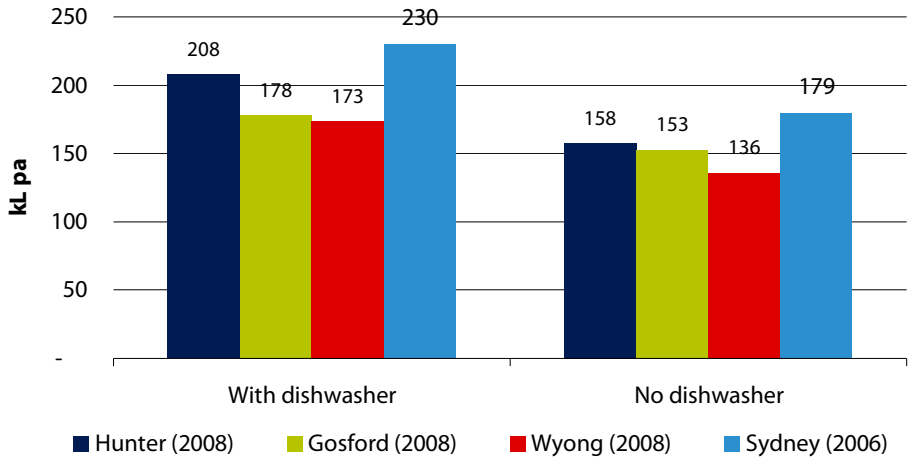
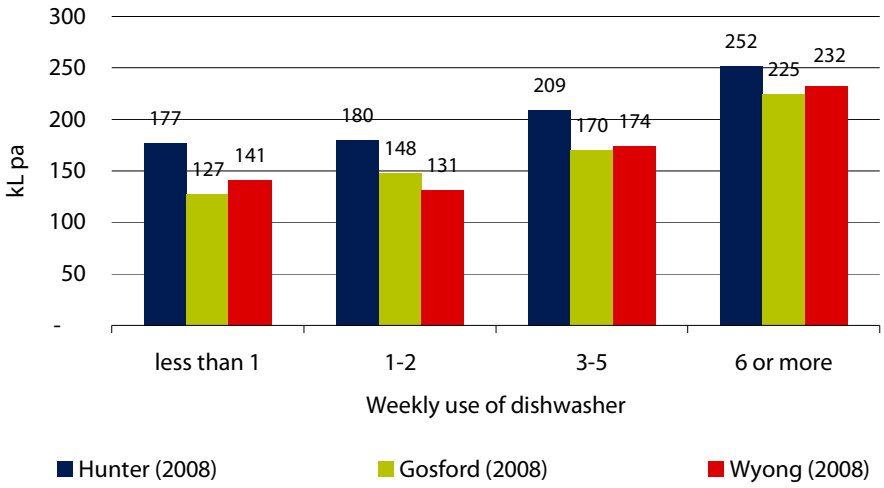


Figure 5.8 Average water consumption by frequency of dishwasher use (times per week)

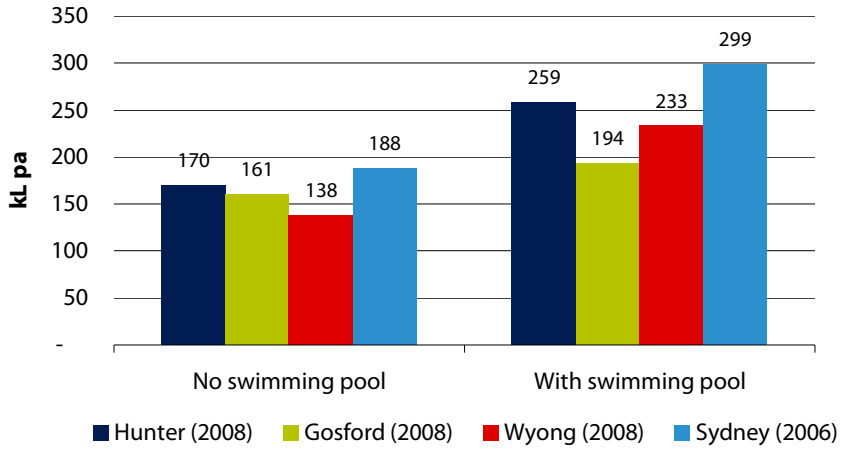


5.3.2 Swimming pool ownership

Households with swimming pools use significantly more water than those without swimming pools. For example, households with a swimming pool in the Hunter area use 89 kL (or 52 per cent) more water than those without a swimming pool. Households with a swimming pool in Wyong use 96 kL (or 70 per cent) more water than those without a swimming pool. These findings are consistent with those for

Sydney in 2006, where households with a swimming pool used 111 kL (or 59 per cent) more than those without a swimming pool (Figure 5.9.)[29]

Figure 5.9 Average water consumption by swimming pool ownership



5.3.3 Garden watering

Households in Gosford and Wyong are not permitted to water their gardens with hand held hoses or to use sprinkler systems, because of water restrictions. Thus the survey only asked households in the Hunter area about garden watering methods.

The results of the survey in the Hunter area reveal three key findings:[30]

- Households that do not water their gardens use less water than households that do water their gardens.
- Households that use sprinkler systems use more water than households that use hand held hoses.
- Households that water their gardens use more water if they live on large blocks of land compared to households that live on small blocks of land.

As Figure 5.10 shows, average water consumption is highest for households on large blocks of land that use a sprinkler system (256 kL per year), and lowest for households on small blocks of land that use a hand held hose (146 kL).[31]

Comparing households that live on medium sized blocks of land (which is the most common size), households that use a sprinkler system use 35 kL (or 19 per cent) more

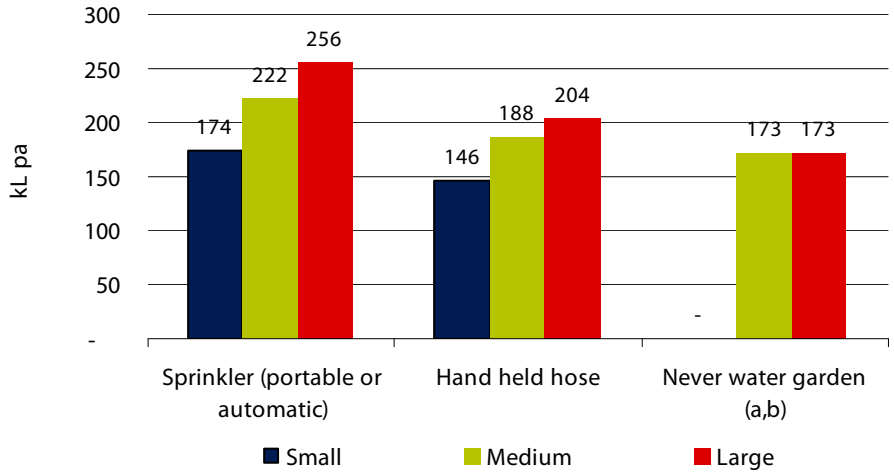
[29] It is unclear why there is a much smaller variation between those with and without pools in Gosford than the other regions.

[30] Only households that live in freestanding houses are included in this analysis.

[31] As very few households that live on small blocks of land never water their gardens, it was not possible to provide a reliable estimate of consumption for this category.

than households that use a hand held hose, and 49 kL (or 29 per cent) more than households that never water their garden.

Figure 5.10 Average water consumption for freestanding houses with different garden watering methods and property sizes (Hunter area only)



a Average consumption for households on small properties who never water the garden are not shown due to the very low number of observations.

b Average consumption for households on large properties who never water the garden must be interpreted with caution due to the low number of observations.

Note: Freestanding houses only, Small (<400m^2), medium (400-900 m^2), large (>900m^2).

Again, these increases in consumption should not be interpreted as the incremental effect on average water consumption of garden watering. Other factors, such as household size and income, are likely to play a role in the average consumption of the different households.

5.4 Alternatives to mains water: bore water, grey water and rainwater tanks

As previously mentioned, the Gosford and Wyong Councils have adopted a number of strategies to reduce mains water usage. One strategy has been to offer rebates to customers who install rainwater tanks or grey water treatment systems. Households that connect their rainwater tanks for indoor use are also subject to less stringent water restrictions (see Box 5.1).[32]

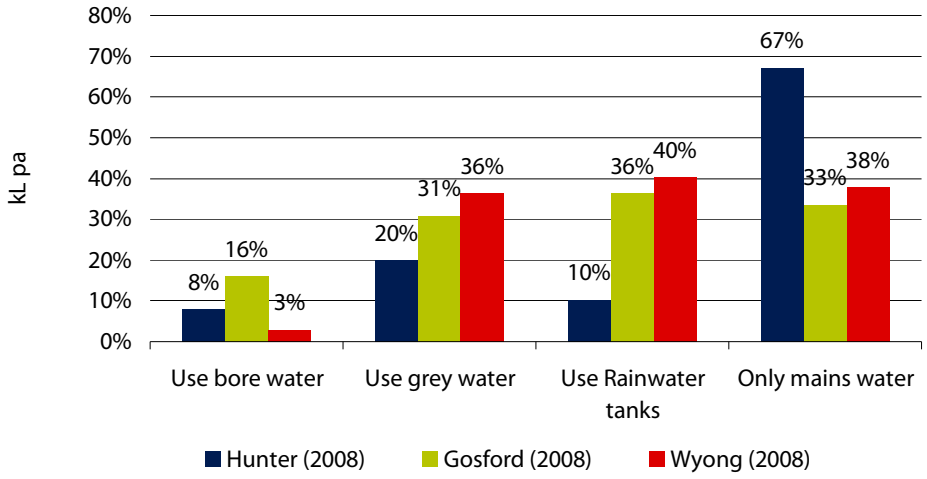
In order to shed some light on the success of this strategy, the 2008 survey included a number of questions regarding households' use of alternative sources of water, namely bore water, grey water and water from rainwater tanks.

32 See Gosford/Wyong Councils' Water Authority website (*http://www.gwcwater.nsw.gov.au/SavingWater/rebates/rebates_index.htm*).

The survey found that many more households in Gosford and Wyong use bore water, grey water or water from rainwater tanks than in the Hunter area. Forty per cent of households in Wyong use rainwater tanks and 36 per cent use grey water. Bore water is most common in Gosford (16 per cent), but high proportions of households also use rainwater tanks (36 per cent) or grey water (31 per cent). In the Hunter area, where there are no water restrictions, a much lower proportion of households use bore water (8 per cent), grey water (20 per cent) or rainwater tanks (10 per cent). More than two-thirds of households in the Hunter area (67 per cent) use only mains water, compared to 33 per cent in Gosford and 38 per cent in Wyong (Figure 5.11).

About 95 per cent of households that use bore water or grey water use it only outdoors (eg, for watering gardens and filling pools). Water from rainwater tanks is most commonly used indoors (eg, for flushing toilets and in washing machines), and 17 per cent of households who use water from this source use it both indoors and outdoors.

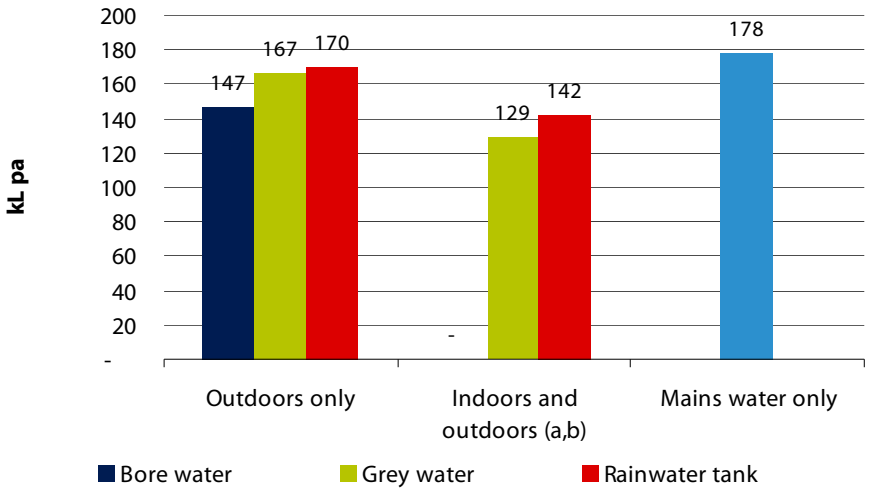
Figure 5.11 Households that use bore water, grey water or rainwater tanks



Note: Numbers will not add up to 100 per cent because many households use more than one alternative source of water.

Households that use alternative sources of water on average use less mains water, particularly if they use this water both indoors and outdoors. For example, households in the Hunter, Gosford and Wyong areas that do not use alternative sources of water consume about 178 kL of mains water per year, while households that use water from rainwater tanks both indoors and outdoors use 36 kL (or 20 per cent) less mains water. Households that use grey water outdoors only on average use 11 kL (or 7 per cent) less than households who use only mains water. (See Figure 5.12.)

Figure 5.12 Average mains water consumption by households with and without alternative sources of water



a Average consumption for households that use grey water both indoors and outdoors must be interpreted with caution due to the small number of observations (29).

b Average consumption for households that use bore water both indoors and outdoors is not reported due to the very small number of observations (11).

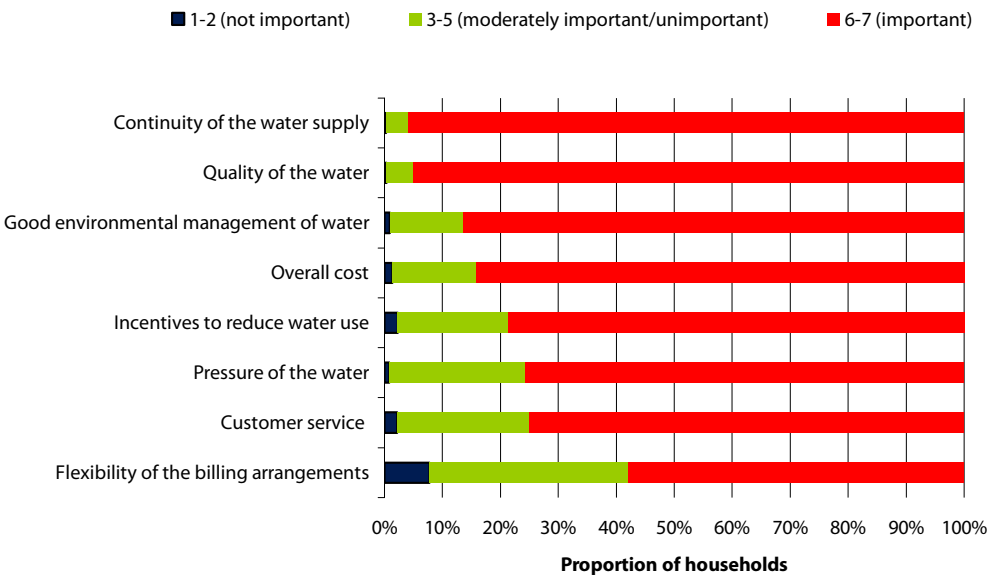
Note that these differences in consumption cannot be interpreted as the 'savings' of mains water due to the use of the alternative sources. To estimate such savings, one would need to take a large number of other factors into account such as household size, income and land size. For example, households that use rainwater tanks might have higher incomes, more occupants and live on larger blocks of land than average. The savings from installing a rainwater tank would need to be calculated by comparing their water usage before and after installation, or with reference to other households with similar characteristics

5.5 What is important to customers

To help understand what customers most want from their water supply service, the survey asked respondents to rate the importance of eight attributes of a water supply service, on a scale of 1 to 7. Their answers, which are summarised on Figure 5.13, show that:

- virtually all respondents rated the "continuity of the water supply" and "quality of the water" as important or very important (score 6 or 7)
- "good environmental management of water" and "overall cost" were rated as important or very important by around 85 per cent of respondents
- "incentives to reduce water use", "pressure of the water" and "customer service" were important or very important to more than 75 per cent of households
- "flexibility of the billing arrangements" was rated the least important.

Figure 5.13 Proportion of households rating water service attributes as important or not important



Finally, respondents were asked whether they would be prepared to pay 10 per cent more for water to reduce the frequency of supply interruptions from once a year to once every two years. Few respondents indicated that they would be willing to pay more for this purpose, ranging from 9 per cent of survey participants in the Hunter area to 12 per cent in Gosford and 18 per cent in Wyong. This unwillingness to pay more suggests that supply interruptions are not regarded as a major problem, particularly in the Hunter area and Gosford.

6 Consumption, income and payment difficulties

A household's income can influence how much electricity, gas and water it consumes, as well as its ability to pay for these utilities. In analysing the 2008 survey data, IPART examined the relationship between household consumption, income, and payment difficulties. In particular, it looked at the characteristics of households with different levels of household income, how consumption varies with household income, and other household characteristics that might influence a customer's vulnerability to increases in utility prices. It also looked at the household characteristics of respondents who said they had experienced difficulties in paying their utility bills.

IPART's analysis indicates that:

- On average, households in the Hunter, Gosford and Wyong areas have lower incomes than those in Sydney in 2006. Those in the lowest income category are more likely to be renting their home, have only one or two occupants, and have a concession card. In addition, they are less likely to own or frequently use large appliances.
- As in Sydney in 2006, households with lower incomes generally consume less electricity, gas and water than those with higher incomes. However, there are both large and small users within each income category.
- 86 per cent of households in the lowest income group have concession cards entitling them to rebates on their utilities bills. The fact that households that include concession card holders tend to have lower consumption levels (and hence smaller utility bills) and can claim rebates on their utility bills suggests that these households may be less likely to experience payment difficulties than low and low-middle income households without concession cards, particularly if the latter have more occupants.

In general, in relation to financial difficulty in paying utility bills:

- payment difficulties are spread across all income groups, and decline significantly only for households with incomes exceeding $104,000 per year
- larger households are more likely to have difficulty than smaller households
- renters are more likely to have difficulty and approach their suppliers about this than owners, and households who have fully paid off their homes are least likely to have difficulties

- households are more likely to experience difficulty paying their electricity bills than their water or gas bills.

The most common response by suppliers to being approached by a customer about payment difficulties is to extend the due date of the bills.

These findings are discussed in more detail below.

6.1 Characteristics of households with different levels of income

As Chapter 2 discussed, on average, households in the Hunter, Gosford and Wyong areas have lower incomes than those in Sydney. Based on 2006 Census data,[33] the median household income in Sydney was $1,154 per week, while the median household income in the Hunter was $888 and in Gosford and Wyong it was $856 per week.[34]

Just over one third (35 per cent) of households in the Hunter, Gosford and Wyong areas have incomes of less than $31,200, and 13 per cent have incomes over $104,000 per year.

Table 6.1 summarises the typical characteristics of low and high income households in the Hunter, Gosford and Wyong areas. In general, high income households are more likely to own or be paying off their homes than low income households. On average, they also have more household occupants and are more likely to have mains gas, a swimming pool, and one or more large energy using appliances (such as a clothes dryer, dishwasher and second refrigerator). Only 2 per cent of high income households have a concession card, compared to 86 per cent of low income households.

33 ABS, 2006 Census QuickStats, for Hunter (Commonwealth Electoral Division), Gosford-Wyong (Statistical Subdivision), Illawarra (Statistical Division), Sydney (Statistical Division).

34 Based on household survey resulted weighted by Census data. Income weights are discussed in Appendix A, section A.9.2.

Table 6.1 Characteristics for households with low and high incomes

Low household income (less than $31,200)	High household income (more than $104,000)
23% rent their home (private or public)	6% rent their home (private or public)
77% own or are paying off their home	94% own or are paying off their home
1.9 people in their household	3.5 people in their household
39% are single person households	5% are single person households
13% are couples with children	72% are couples with children
86% have a concession card	2% have a concession card
23% have mains gas	41% have mains gas
61% have a clothes dryer; 29% have a dishwasher; 43% have a second refrigerator	88% have a clothes dryer; 78% have a dishwasher; 66% have a second refrigerator
68% have air conditioning	75% have air conditioning
13% use air conditioners less than 1 day per month and 14% use them more than 4 days per week in summer	9% use air conditioners less than 1 day per month and 21% use them more than 4 days per week in summer
11% use air conditioners less than 1 day per month and 29% use them more than 4 days per week in winter	10% use air conditioners less than 1 day per month and 37% use them more than 4 days per week in winter
6% have a swimming pool	30% have a swimming pool

6.2 How does consumption vary with household income?

IPART analysed the survey data to understand how household consumption of electricity, gas and water varies by household income. It also looked at the consumption levels of home owners and renters in low and high income groups. In addition, it examined the consumption levels of concession card holders, who are mainly from low income households, and considered what implications its findings might have for this group's vulnerability to price increases.

6.2.1 Relationship between consumption and income

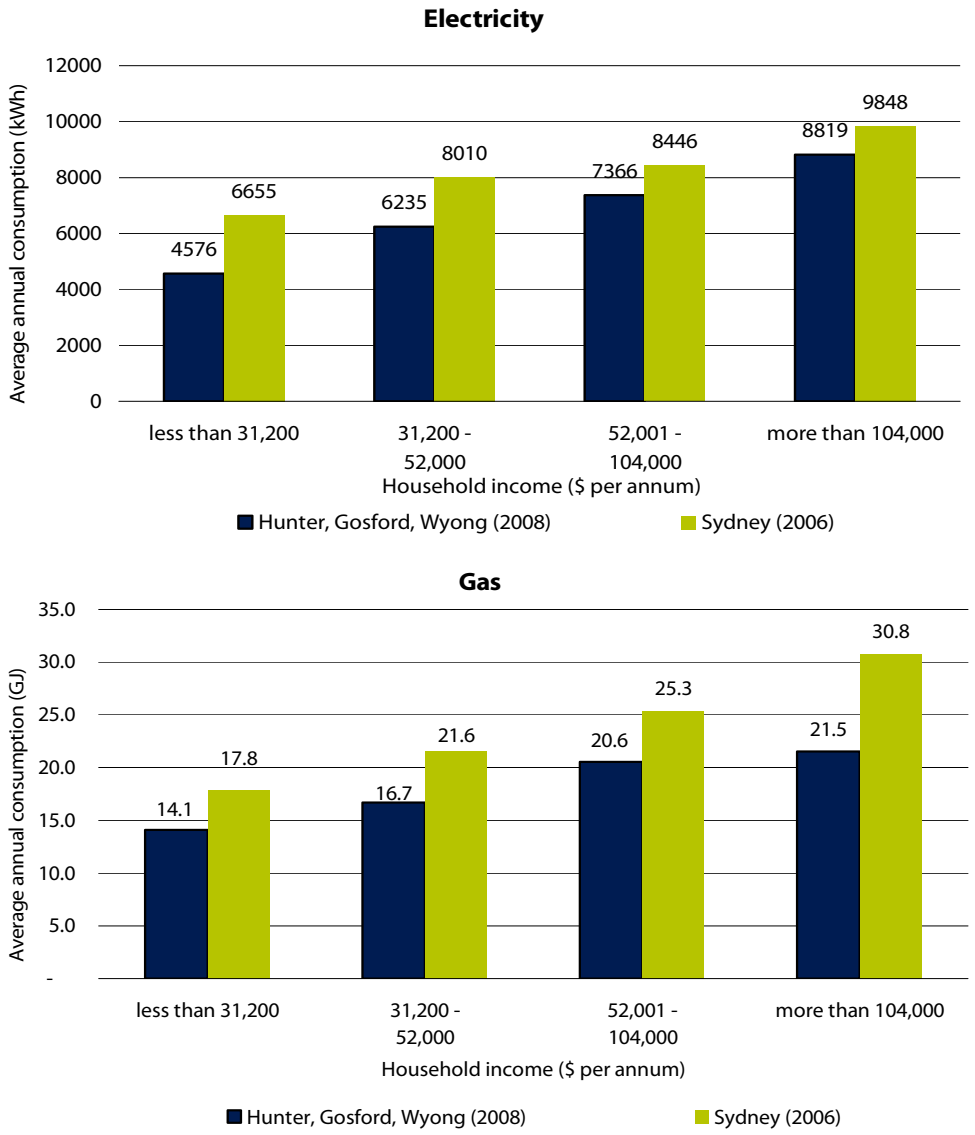
In the Hunter, Gosford and Wyong areas, higher income households generally consume more electricity, gas and water than lower income households. This finding is consistent with the 2006 Sydney survey. (See Figure 6.1.)

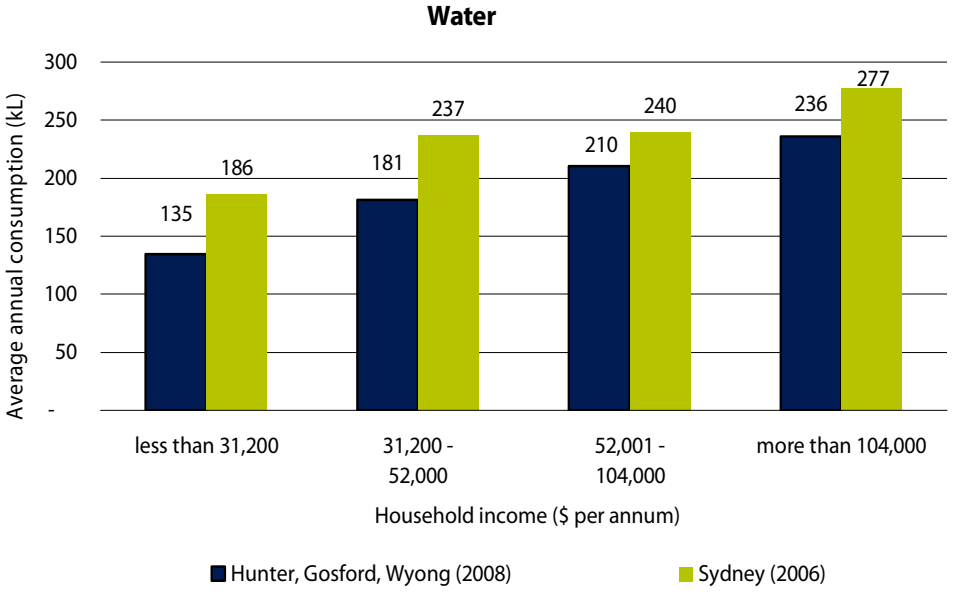
However, there appears to be a stronger relationship between electricity consumption and income than there is for water and gas consumption. On average, high income households consume:

- 4,243kWh (or 93 per cent) more electricity annually than low income households
- 10.4 GJ (or 53 per cent) more gas annually than low income households
- 101 kL (or 75 per cent) more water annually than low income households.

The 2006 survey also found that electricity consumption in Sydney was more sensitive to income than water consumption. However, it found that gas consumption was the most sensitive to income, perhaps reflecting broader access to mains gas across income groups in Sydney.

Figure 6.1 Average annual consumption of electricity, gas and water by income groups



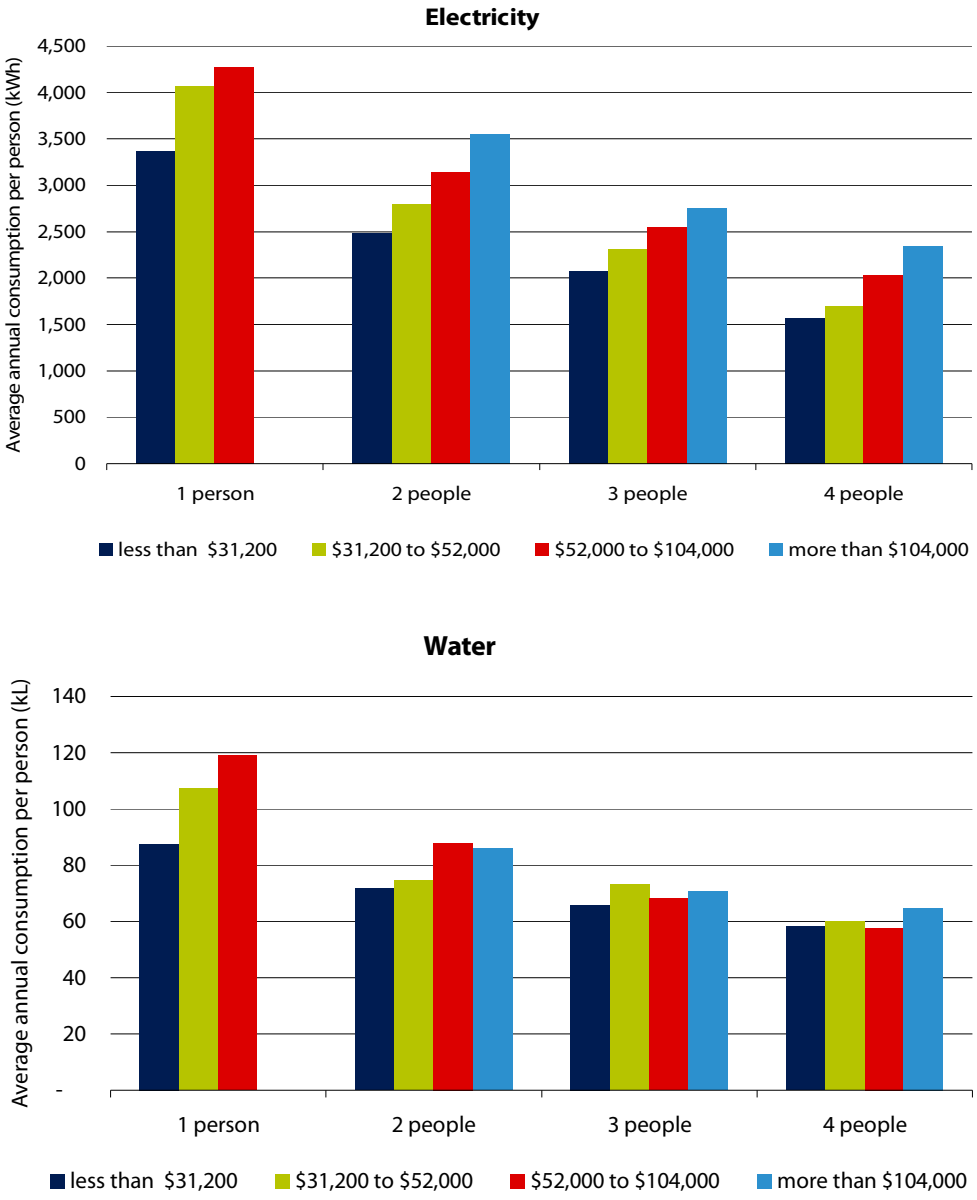


High income households are generally larger households than low income households (see Table 6.1). To see to what extent their higher consumption patterns are simply due to having more occupants, IPART examined electricity and water consumption per person[35] by household income and size.

The results indicate that when household size is the same, higher income households still consume more electricity than lower income households. However, the relationship between water consumption per person and household income is less clear. For example, in households with both three and four occupants, consumption per person is similar across the income groups. (See Figure 6.2).

35 The number of people in a household is simply the number of occupants, not adjusted for age.

Figure 6.2 Average consumption of electricity and water per person, by household income and household size (kWh per occupant)

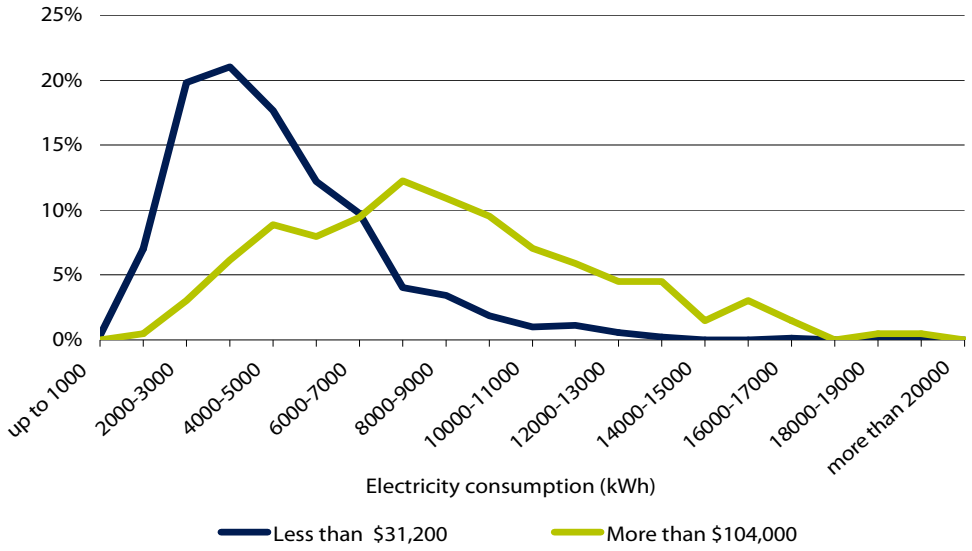


Note: Gas consumption has not been included due to the small sample size for these categories.

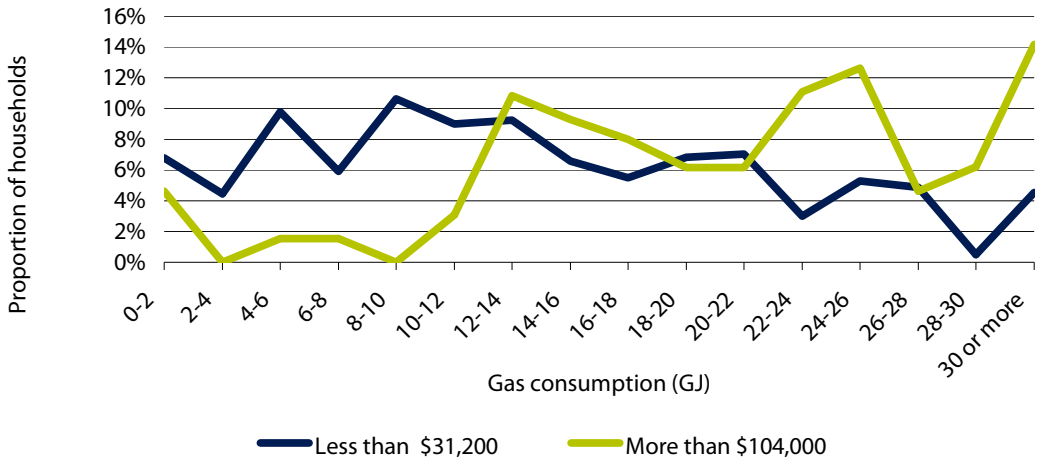
6.2.2 Consumption distribution of low and high income households

While on average, low income households use less electricity, gas and water than high income groups, there are both large and small users within each income category. This is demonstrated in Figure 6.3, which shows the percentage of respondents within each consumption band, for low income households (less than $32,000 per year) and high income households (more than $104,000 per year).

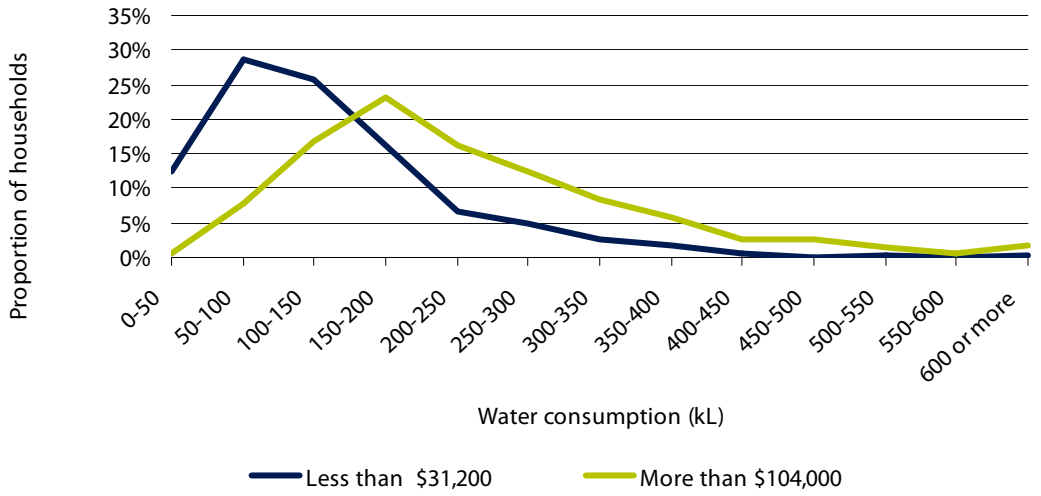
Figure 6.3 Proportion of households by electricity, gas and water consumption band



Gas



Water



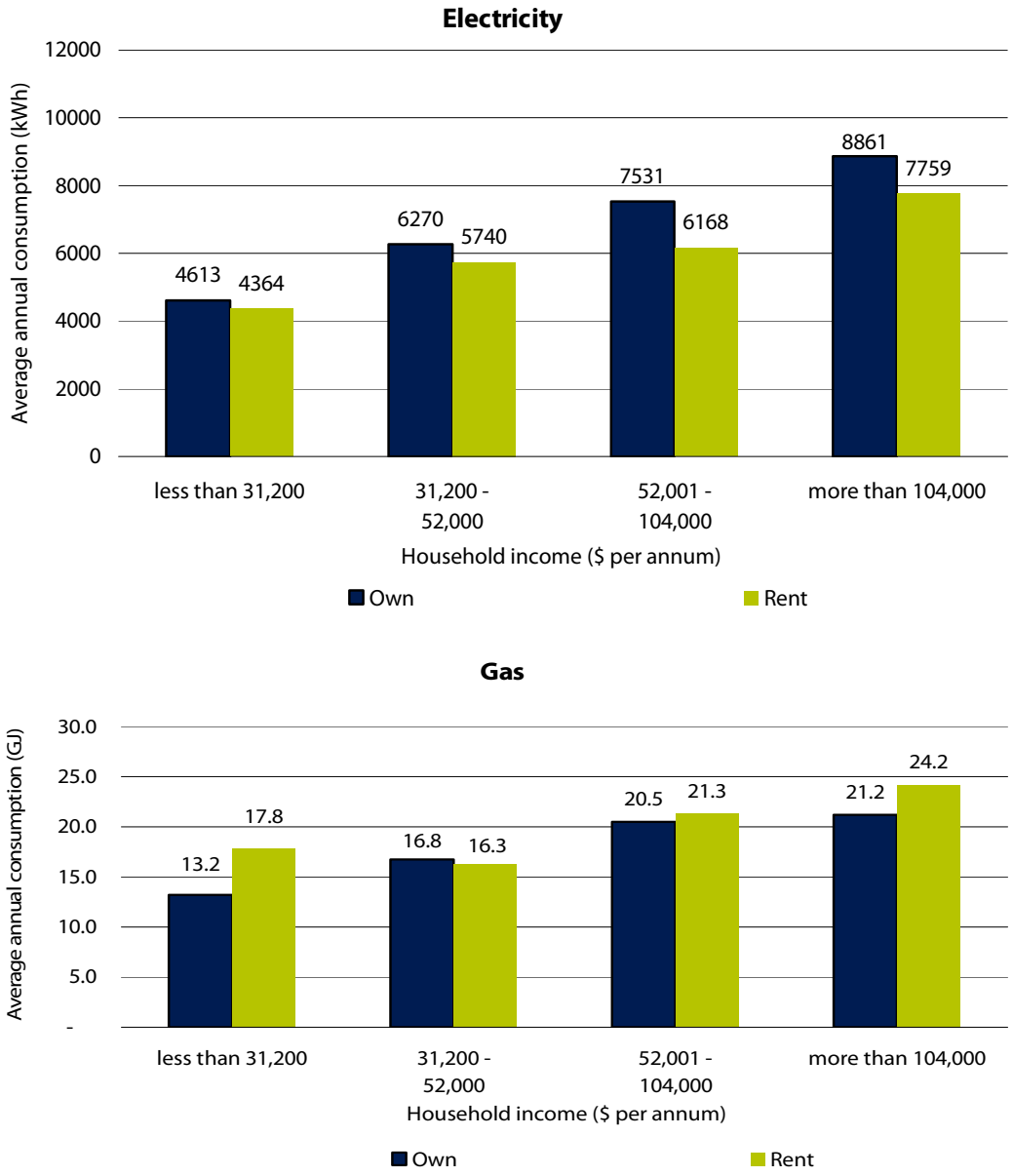
6.2.3 Relationship between consumption, income and home ownership status

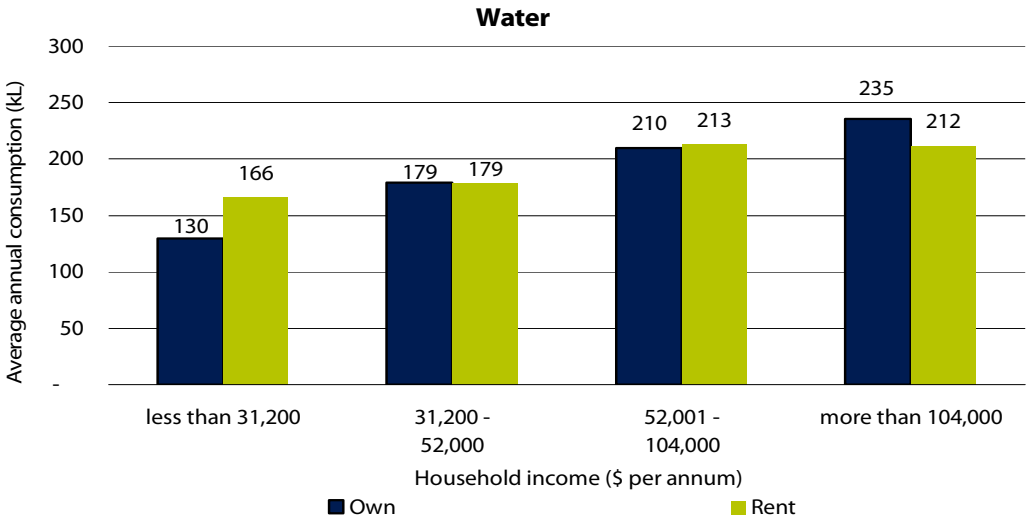
IPART looked at the relationship between consumption, income and home ownership to understand why renters tend to experience more financial difficulty paying their utility bills than home owners (see section 6.3 below). There are several possible reasons for this, including that renters have lower incomes and/or higher accommodation costs, or that renters use more energy or water and have higher bills. To determine whether there is any association between home ownership and consumption, IPART analysed the differences in average household consumption of electricity, gas and water by home ownership status. However, it found no pattern

across the services by income group. Home owners consume more electricity than those renting, whereas gas consumption of owners is similar to or less than renters for each income group. Results for water consumption are mixed, with renters consuming more than owners in the lowest income group and less than owners in the highest income group. (See Figure 6.4.)

In the 2006 Sydney survey, the results showed a more consistent pattern. In the higher income groups, owners consumed more of each service than renters. However, in the lower income groups, the consumption levels of owners and renters were similar.

Figure 6.4 Average annual consumption of electricity, gas and water by income category and home ownership status



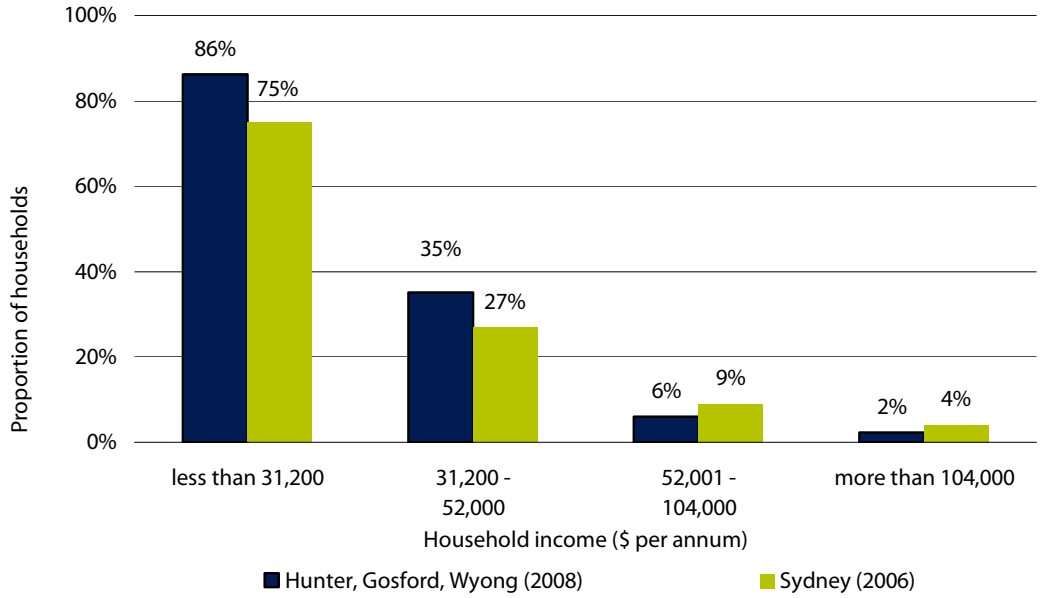


6.2.4 Relationship between consumption and concession card status

Concession card holders are mainly from low income households and therefore may be vulnerable to increases in utility prices. To better understand this vulnerability, IPART looked at concession card status by household income group, and by consumption levels.

In the Hunter, Gosford and Wyong areas, the survey found that 86 per cent of respondents in the lowest income group hold a concession card, compared to only 2 per cent of respondents in the highest income group (Figure 6.6).

Figure 6.5 Concession card holders by income group



The survey also found that concession card holders consume less than households without a concession card (Figure 6.6). On average, households without a concession card consume:

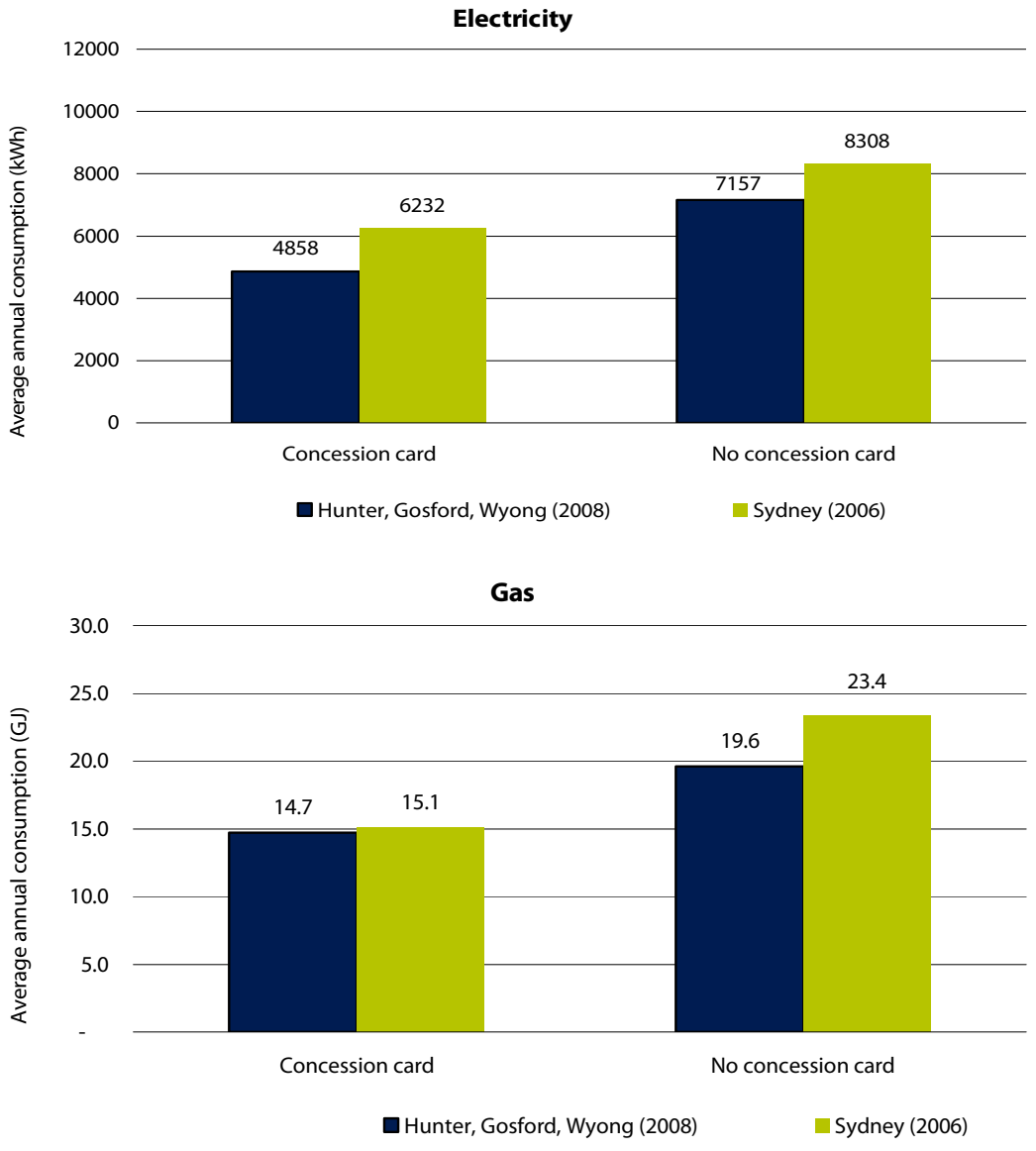
- 2299 kWh (or 47 per cent) more electricity annually than households with a concession card
- 4.9 GJ (or 33 per cent) more gas annually than households with a concession card
- 67 kL (or 48 per cent) more water annually than households with a concession card.

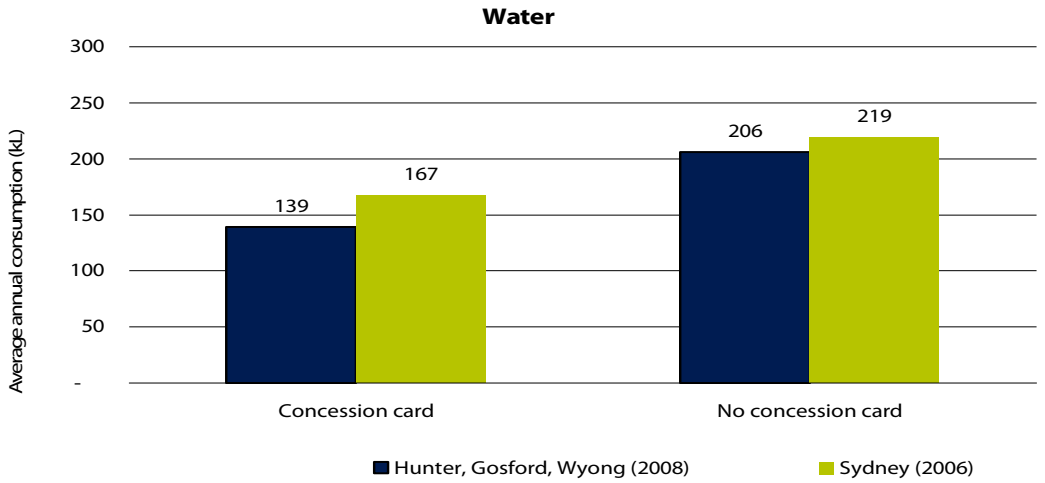
In the 2006 Sydney survey, concession card holders were also found to consume less, on average, than non-concession card holders. In both survey areas, this low consumption appears to be a consequence of the smaller household size and lower income levels. For example in the Hunter, Gosford and Wyong area, households with concession cards an average of 2.0 occupants, compared to 3.1 in households without concession cards.

Concession card holders can claim rebates for their utility bills (see **Error! Reference source not found.**). The 2008 survey found that most the respondents who are concession card holders are generally aware of these rebates and claim them. For example, 96 per cent of these respondents said they know they can claim rebates for their energy bills, and 94 per cent said they claim them. In addition, 90 per cent said they know they can claim rebates for their water bills, and 88 per cent said they claim them.

The fact that households that include concession card holders tend to have lower consumption levels (and hence smaller utility bills) **and** can claim rebates on their utility bills suggests that these households may be **less** likely to experience payment difficulties than low income households without concession cards, particularly if the latter have more occupants.

Figure 6.6 Average consumption of electricity, gas and water by concession card status





Box 6.1 Concession arrangements for energy and water services

Who qualifies for concessions?

Concessions are available to Centrelink pensioner concession card or Department of Veterans' Affairs concession card holders for household energy (electricity and gas) and water services.

Centrelink pensioner concession cards are available to low income earners receiving selected payments (eg, age pension, single parenting payment or carer payment), to help with the cost of medicines and a range of concessions.

Department of Veterans' Affairs concession cards are available to low-income war veterans who are service pensioners, age pensioners or war widows/widowers receiving an income support supplement.

What concessions are available for energy?

The NSW Government provides an energy rebate of $112 per year to eligible households for electricity and gas. The rebate is paid through electricity bills and is available to households with (at least) one member that holds a Centrelink pensioner concession card or Department of Veterans' Affairs concession card.

What concessions are available for water and sewerage?

Hunter Water's pensioner rebate in 2008/09 is $175 for water and sewerage charges. Gosford City Council's and Wyong City Council's pensioner rebate in 2008/09 also totals a maximum of $175. It covers 50 per cent of the sewerage service charge (not exceeding $87.50), 50 per cent of the water usage charge (not exceeding $43.26) and 50 per cent of the water service charge (not exceeding $44.24). In each case, rebates are available to owner-occupiers holding Centrelink pensioner concession cards or Department of Veterans' Affairs concession cards.

6.3 What household and other characteristics are associated with difficulty in paying utility bills?

The survey asked respondents if they had felt financially unable to pay their electricity, gas and water bills in the last three years, and if so, whether this was within the past year.[36] It also asked respondents if they had approached their supplier about payment difficulties, and what help they received. In addition, the survey asked if respondents had accessed Energy Accounts Payment Assistance (EAPA) vouchers or sought other financial relief to cope with utility bills. Finally, the survey asked if they had ever been disconnected by their supplier.

6.3.1 Households who felt financially unable to pay their utility bills

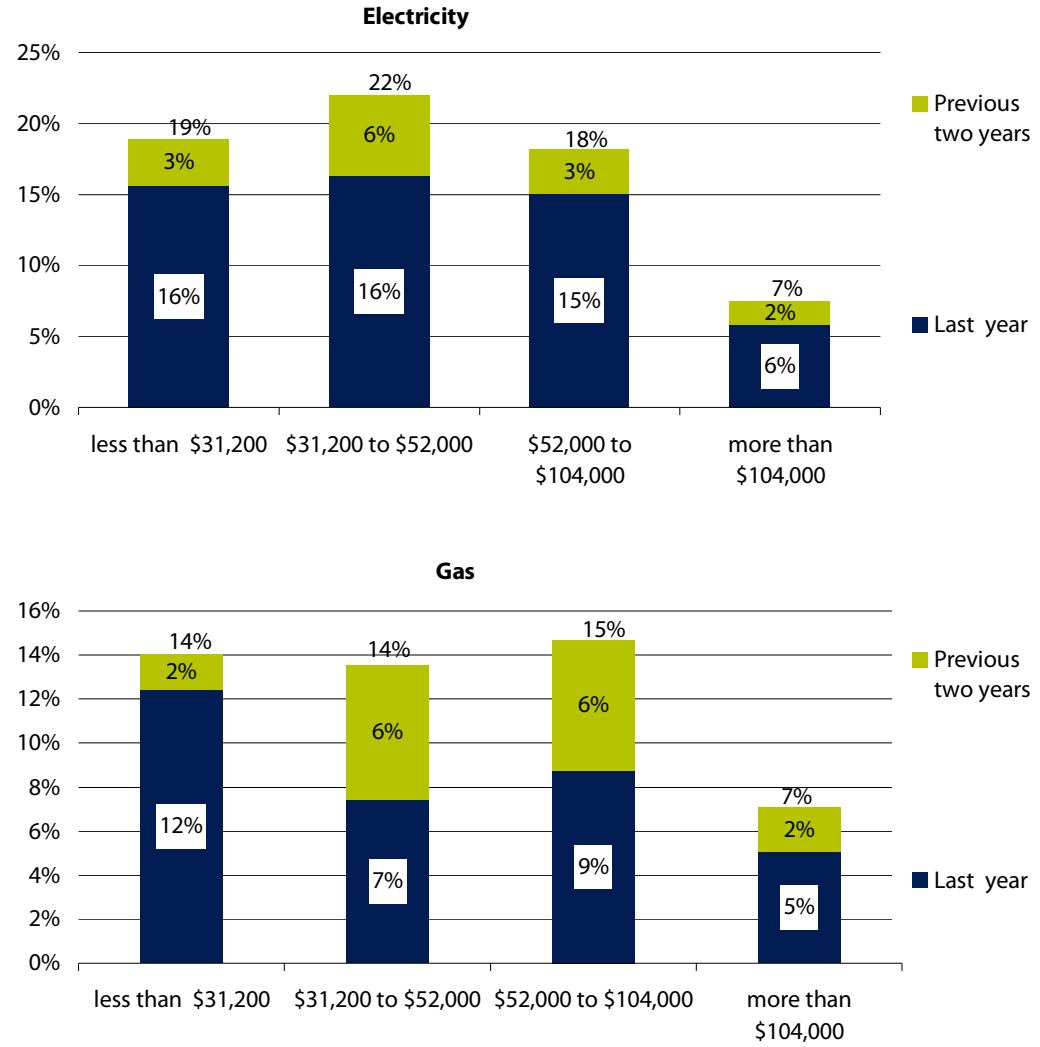
Figure 6.7 shows that similar proportions of households in the low and middle income groups have experienced financially difficulty in paying their utility bills in the last three years, while a significantly smaller proportion of those in the highest income group have had difficulty. For example, between 18 per cent and 22 per cent of households with incomes below $104,000 per year indicated that they had experienced difficulty paying their electricity bills, compared to 7 per cent of households with incomes above $104,000. Households in the low-middle income category ($31,200 to $52,000) were the most likely to have experienced difficulty.

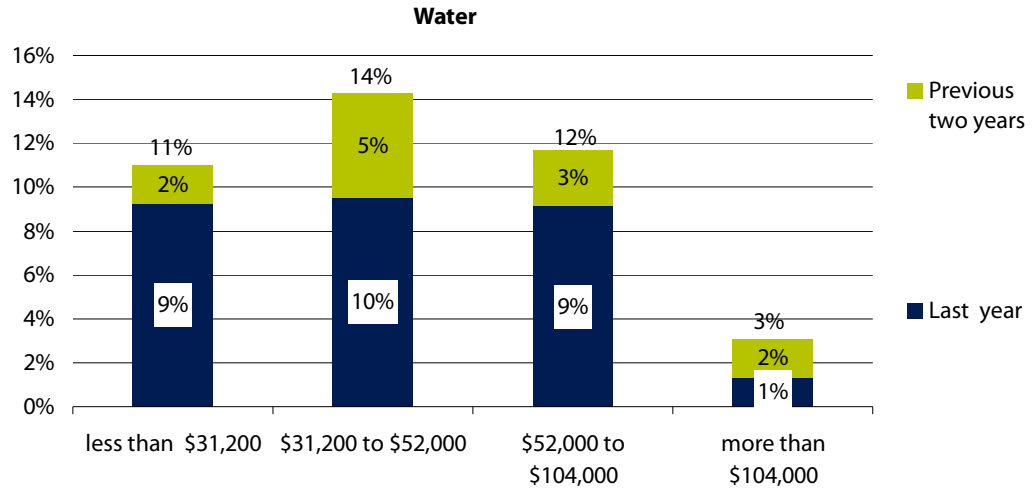
Most respondents who felt financially unable to pay their utility bills in the last three years indicated that this occurred within the past year. This was more common for electricity bills and water bills than for gas bills[37].

[36] The results regarding payment difficulties are to be interpreted with caution due to the small sample size for some of the categories.

[37] The findings for gas bills should be treated with caution due to the small number of people in the sample who had experienced difficulty paying their gas bills.

Figure 6.7 Proportion of households who felt financially unable to pay their utility bills in the last year and previous two years





Note: The values for gas should be interpreted with caution due to the small sample size.

There is a stronger association between payment difficulties and characteristics such as home ownership status and household size, than household income. Households are generally more likely to have felt financially unable to pay their utility bills in the last three years if they are:

- Renters rather than owners. For example, 37 per cent of renters felt this way about their electricity bill, compared to 13 per cent of owners.
- Owners paying off their homes rather than owners who have paid off their homes. For example, 19 per cent of owners paying off their homes felt this way about their gas bills, compared to 7 per cent of owners who have paid off their homes.
- Larger households rather than smaller households. For example, 21 per cent of households with five or more people felt this way about their water bills, compared to 7 per cent of households with two or less people.
- Non-concession card holders rather than concession card holders on low incomes. For example, 28 per cent of non-concession card holders with incomes below $52,000 per year reported experiencing difficulty paying their electricity bills in the last three years, compared to 17 per cent of concession card holders.

The typical characteristics of low and low-middle income households are set out in Table 6.2. In general, low-middle income households are more likely to be couples with children, have larger households and be paying off their homes than low income households. Further, 86 per cent of low income households have a concession card, compared to 35 per cent of low-middle income households. These characteristics may explain why households in low and low-middle income groups

are equally likely to feel financially unable to pay their utility bills, despite the difference in household income.

Table 6.2 Characteristics of households with low and low-middle household incomes

Low household income (less than $31,200)	Low-middle household income ($31,200-$52,000)
86% have a concession card	35% have a concession card
72% have paid off their homes	55% have paid off their homes
5% are paying off their homes	24% are paying off their homes
1.9 people in their household	2.8 people in their household
13% are couples with children	35% are couples with children

The survey findings indicate that low household income is not a defining characteristic of households with payment difficulties. Payment difficulties are spread across all income groups, and decline significantly only for households with incomes exceeding $104,000 per year. This is illustrated in Table 6.3, which compares characteristics of households who had difficulty paying their electricity bills in last three years with those who did not have difficulty. For example, households in the lowest income group constitute 46 per cent of households with payment difficulties, and 42 per cent of those without payment difficulties. Households with annual incomes between $31,200 and $104,000 make up 44 per cent of households with payment difficulties and 38 per cent of households without difficulties.

Table 6.3 indicates further that concession cards status is not a defining characteristic of households with payment difficulties. While some concession card holders have difficulty paying their bills, many do not.

Rather, Table 6.3 suggests that households that have had difficulty paying their bills are more likely to be families rather than single people or couples without children. They are also more likely to be paying off their homes or renting, rather than to have paid off their homes. For example:

- Two-thirds of households with payment difficulties are couples with children or single parent families. In contrast, only around one-third of households without payment difficulties are couples with children or single parent families. The majority of household who have not experienced difficulty paying their bills are single person households or couples without children (59 per cent).
- Less than one-third of households with payment difficulties have paid off their homes, compared to more than two-thirds of households without payment difficulties. The difficulties experienced by renters are reflected in the finding that they constitute 36 per cent of households with payment difficulties and only 13 per cent of households without payment difficulties.

Table 6.3 Characteristics of households who have difficulty paying electricity bills compared to those who do not[a]

Households with difficulty paying electricity bills in last three years	Households without difficulty paying electricity bills in last three years
46% have incomes less than $31,200	42% have incomes less than $31,200
44% have incomes $31,200 to $104,000	38% have incomes $31,200 to $104,000
4% have incomes greater than $104,000	10% have incomes greater than $104,000
44% have a concession card	49% have a concession card
36% claim concessions on energy bills	44% claim concessions on energy bills
73% of respondents are less than 55 years old	38% of respondents are less than 55 years old
60% have 3 or more people in their household	34% have 3 or more people in their household
48% are couples with children	31% are couples with children
18% are single parents	6% are single parents
31% are single or couples without children	59% are single or couples without children
28% have fully paid off their home	67% have fully paid off their home
35% are paying off their home	20% are paying off their home
36% are renting	13% are renting

a The income categories do not add up to 100 per cent because households who refused to reveal their income are not shown in the table. Similarly, the household types do not add up to 100 per cent because "other" household types are excluded.

The characteristic of households who had difficulty paying their water bills in the last three years are similar to those who had difficulty paying their electricity bills (Table 6.4). The main difference is the comparatively low proportion of renters amongst households who experienced difficulty paying their water bills (12 per cent), which is explained by the fact that renters only pay the usage component of the bill.[38]

[38] Renters do not pay water or sewerage service charges to the water utilities and only sometimes pay water usage charges. Landlords are liable for these payments, and (presumably) recover the unpaid portions of bills through rental payments.

Table 6.4 Characteristics of households who have difficulty paying water bills compared to those who do not [a,b]

Households with difficulty paying water bills in last three years	Households without difficulty paying water bills in last three years
42% have incomes less than $31,200	40% have incomes less than $31,200
47% have incomes $31,200 to $104,000	39% have incomes $31,200 to $104,000
3% have incomes greater than $104,000	11% have incomes greater than $104,000
43% have a concession card	47% have a concession card
29% claim concessions on water bills	41% claim concessions on water bills
66% of respondents are less than 55 years old	39% of respondents are less than 55 years old
58% have 3 or more people in their household	36% have 3 or more people in their household
47% are couples with children	34% are couples with children
15% are single parents	6% are single parents
35% are single or couples without children	56% are single or couples without children
37% have fully paid off their home	72% have fully paid off their home
51% are paying off their home	23% are paying off their home
12% are renting	5% are renting

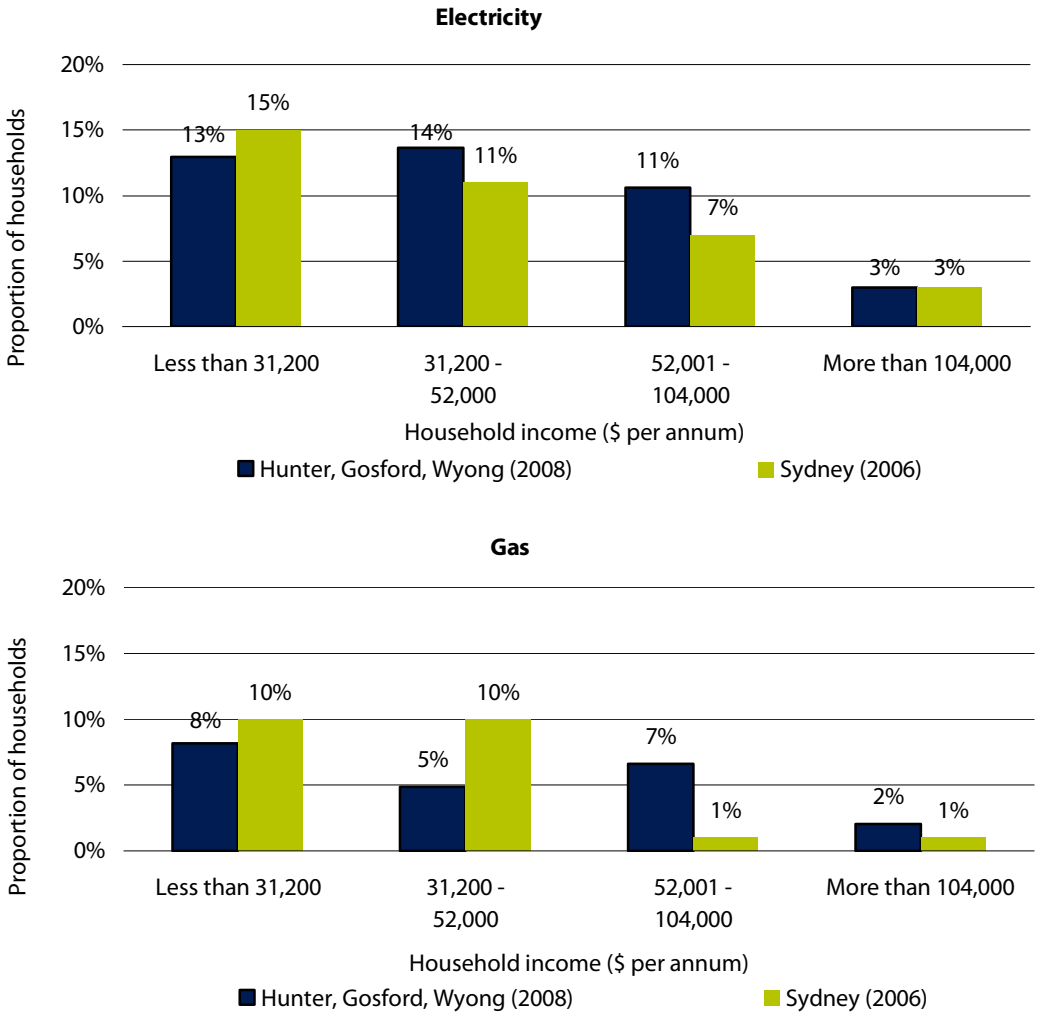
a Renters who are not responsible for paying their water usage charges are excluded.

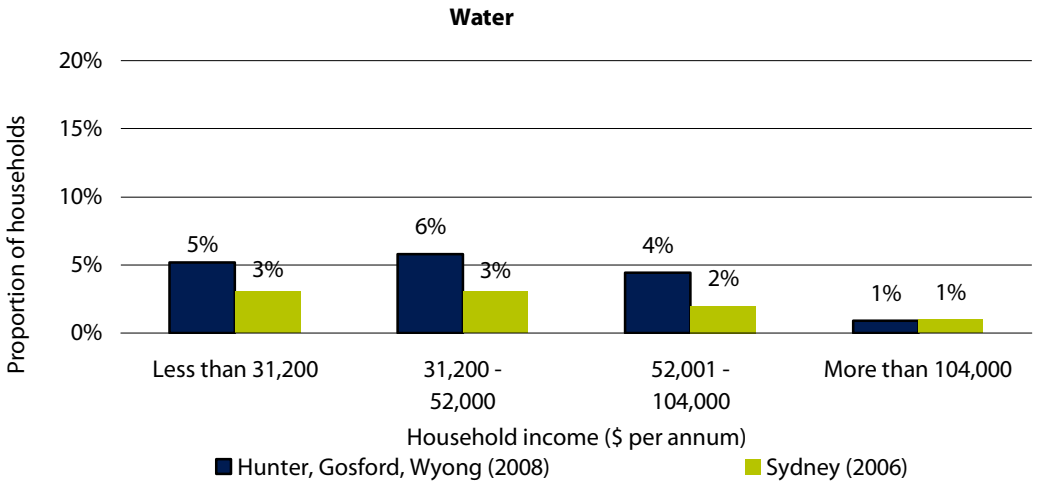
b The income categories do not add up to 100 per cent because households who refused to reveal their income are not shown in the table. Similarly, the household types do not add up to 100 per cent because "other" household types are excluded.

6.3.2 Households who approach utility suppliers with payment difficulties

Consistent with the findings for households experiencing payment difficulties in the last three years (Figure 6.7), a similar proportion of respondents in low and middle income groups approached their suppliers with payment difficulties (Figure 6.8) Again, a significantly lower proportion of households in the highest income group approached their suppliers.

Figure 6.8 Proportion of households who approached their supplier in the last three years because they felt financially unable to pay utility bills



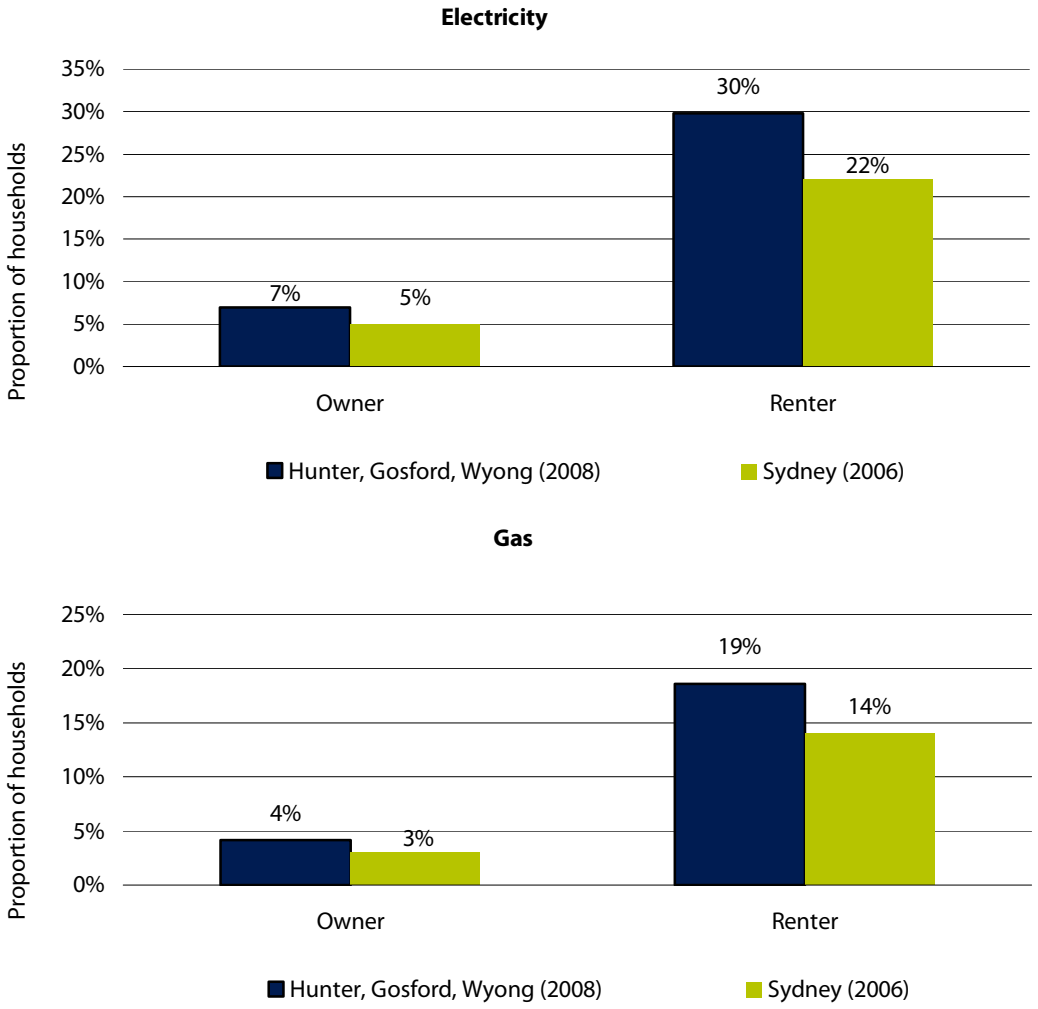


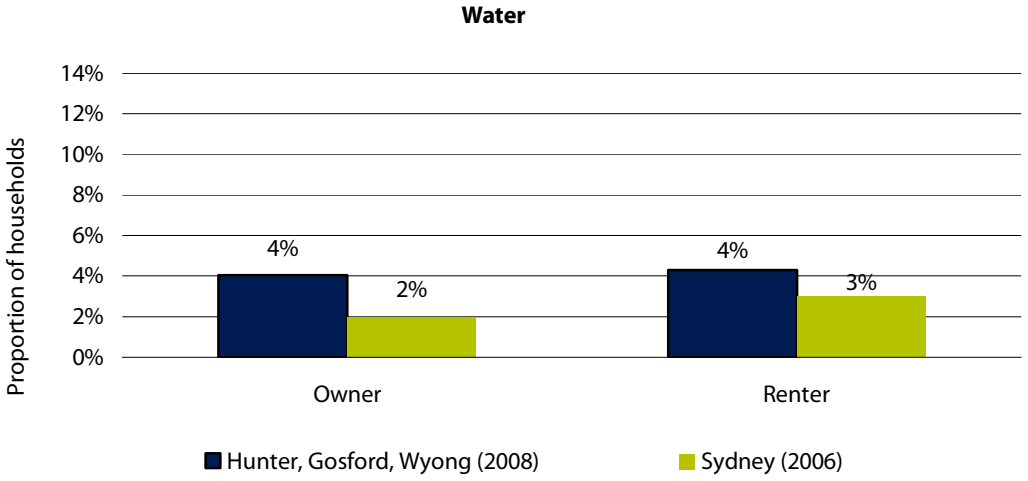
Note: Proportion of total households, not just of households who felt financially unable to pay their utility bills in the last three years. The values in these figures are to be interpreted with caution due to the small sample size for some of the categories.

Renters are more likely than home owners both to experience difficulty paying their bills and to approach their supplies. For example, 30 per cent of renters approached their supplier in the last three years with difficulties paying their electricity bill, compared to 7 per cent of owners (Figure 6.9).

Comparing the 2006 survey results, renters in the Hunter, Gosford and Wyong areas are generally more likely to have experienced payment difficulties than renters in Sydney were in 2006. For example, 30 per cent of renters in the Hunter, Gosford and Wyong areas approached their electricity supplier in the last three years with payment difficulties, compared to 22 per cent of renters in Sydney.

Figure 6.9 Proportion of households who approached their supplier in the last three years because they felt financially unable to pay utility bills, by home ownership status





Note: Renters do not pay water or sewerage service charges for the properties they are renting. Further, not all renters pay water usage charges. Therefore, this figure shows the number of renters approaching their water supplier with payment difficulties as a proportion of renters liable to pay water usage charges, rather than as a proportion of all renters. The values in these figures are to be interpreted with caution due to the small sample size for some of the categories.

The most common response from suppliers when approached by a household with payment difficulties was to extend the due date on the bill – more than 70 per cent of respondents reported this response from their electricity, gas or water suppliers. The next most frequent response was to allow the bill to be paid off in instalments.

6.3.3 Other forms of assistance sought by households

People experiencing payment difficulties with their electricity or gas bills may be eligible to receive Energy Accounts Payment Assistance (EAPA) vouchers to help pay these bills (see Box 6.2). On average, 7 per cent of households received EAPA vouchers in the past three years. When respondents did not receive EAPA vouchers, but were in need of them, the main reason given was that they did not know about the program (25 per cent of respondents).

Box 6.2 Energy Accounts Payment Assistance vouchers

The NSW Government funds a program to help financially disadvantaged people experiencing payment difficulties because of a crisis or emergency situation. The program involves community welfare organisations, such as St Vincent de Paul or the Salvation Army, distributing EAPA vouchers to these people. People can use the vouchers to pay their electricity or gas bill (each voucher is worth $30).

To receive a voucher, an application needs to be made directly to a community welfare organisation. The organisations will assess the applicant's situation and consider whether it is appropriate to provide assistance.

The aim of the voucher program is to ensure people stay connected to essential services during a financial crisis. As such, vouchers are not available on an ongoing basis.[a]

a http://www.deus.nsw.gov.au/energy/Information%20for%20Consumers/Energy%20Rebates.asp#P19_887, accessed November 2008.

Respondents were asked if they had sought other forms of financial relief to cope with utility bills, such as seeking assistance from a community welfare organisation or taking out a short-term loan. On average, 2 per cent of respondents sought other forms of financial relief in the last three years.

6.3.4 Payment difficulties and types of utility bills

Looking at payment difficulties by type of utility bill, respondents are more likely to have felt unable to pay their electricity bill in the last three years (17 per cent of respondents), than their gas or water bills (13 per cent and 10 per cent of respondents respectively). Further, respondents are more likely to have approached their electricity supplier due to payment difficulties (11 per cent of respondents), than their gas or water suppliers (6 and 4 per cent of respondents respectively). Box 6.3 outlines some reasons why households are more likely to experience payment difficulties with their electricity bills, rather than gas or water bills.

Box 6.3 Why are households more likely to experience payment difficulties with their electricity bills, rather than gas or water bills?

Households may be more likely to experience payment difficulties with their electricity bills than their gas or water bills because:

1. Energy bills tend to be larger than water bills, particularly for larger households.
2. Electricity (like water) is an essential service that no-one can do without, whereas gas is more discretionary in nature. The possibility of disconnection is therefore perhaps more urgent for electricity than gas.
3. Electricity prices have increased by more than gas or water prices in recent years.
4. Gas customers have higher incomes, on average, than electricity customers. Fewer are therefore likely to have difficulty paying their bills.
5. Concession card holders, who are mostly low income owners, receive a larger rebate for their water bills than for their energy bills– **Error! Reference source not found.**.
6. Renters, who tend to have the greatest difficulty paying their electricity bills, do not pay water or sewerage service charges to Hunter Water, Gosford City Council or Wyong City Council, and only sometimes pay water usage charges.

6.3.5 Disconnection or restricted flow

The survey asked respondents whether their electricity or gas had been disconnected or their water flow restricted in the last three years because they had not paid their bills. Less than one per cent of households had their electricity or gas disconnected, or their water flow restricted. This is consistent with the finding that suppliers offer some flexibility when a customer faces difficulty paying their bill, by extending the due date and allowing the bill to be paid off in instalments.

7 Retail competition in electricity and gas

Full retail competition (FRC) for electricity and gas was introduced in NSW on 1 January 2002. From that time, all residential energy consumers have had the option to choose their energy supplier. In more recent years, as the market has matured, energy retailing businesses have more proactively marketed competitive retail offers to customers.[39]

To help IPART understand the development of retail competition in energy in the Hunter, Gosford and Wyong areas, the survey included similar questions to those asked of households in Sydney in 2006 – including whether they are aware they can choose their supplier, if they had ever been offered a market contract by their pre-FRC supplier[40] or an alternative supplier, and whether they had accepted a competitive market offer. It also asked participants to give their reason for accepting a market offer or choosing to stay on the regulated tariff. The 2008 survey also included some new questions about how households are experiencing of full retail competition, and about their knowledge of other retailers.

The main findings of the 2008 survey on the extent of competition in the market are as follows:

- Most respondents are aware of competition in electricity and gas in the Hunter, Gosford and Wyong areas, as were participants in Sydney in 2006 (about 90 per cent).
- Since 2002, there has been somewhat more activity in the electricity market in the Hunter, Gosford and Wyong area than in Sydney in 2006, but somewhat less activity in the gas market:
  - More than half of households have been offered a contract by their pre-FRC electricity supplier (compared to 44 per cent in Sydney), and 35 per cent have been offered a contract by their pre-FRC gas supplier (compared to 45 per cent in Sydney).
  - Just over half of households have been approached to switch electricity supplier (compared to 54 per cent in Sydney), and 29 per cent have been approached to switch mains gas supplier (compared to 38 per cent in Sydney).

39 IPART provides a regulated default tariff for customers who do not choose to accept a competitive market offer from a supplier.

40 EnergyAustralia is the pre-FRC electricity supplier in the Hunter, Gosford and Wyong areas, and AGL is the pre-FRC gas supplier.

  - Of those approached by their pre-FRC supplier, 64 per cent decided to move to a market contract for electricity (compared to 53 per cent in Sydney), and 47 per cent decided to move to a market contract for gas (compared to 38 per cent in Sydney).
  - Of those approached to switch their energy supplier, 42 per cent decided to switch electricity supplier (compared to 34 per cent in Sydney), and 53 per cent decided to switch gas supplier (compared to 16 per cent in Sydney).

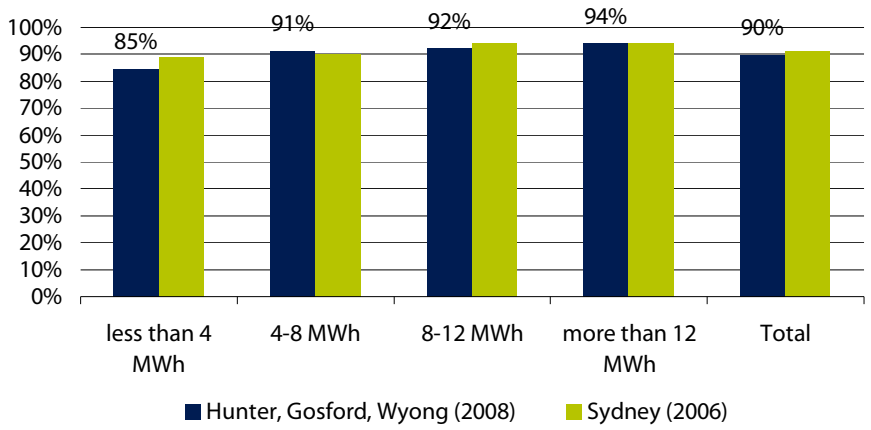
- However, a very small proportion of households in the Hunter, Gosford and Wyong said they had actively approached an energy supplier to ask about entering into a contract. An even smaller proportion had been refused a contract (either after they were approached by a supplier, or had approached a supplier themselves).
- Of households who accepted a market offer, most said the main reason they did so was because they believed it was cheaper. However, only one-third of both electricity and gas customers felt that their bills had gone down after going onto a contract.
- Of households who chose to remain on the default electricity tariff with their pre-FRC supplier, most said the main reason was because were happy with their existing supplier.
- The pre-FRC incumbent suppliers are still the dominant energy suppliers in the Hunter, Gosford and Wyong areas. EnergyAustralia supplies electricity to nearly three-quarters of households in these areas, and AGL is the dominant gas retailer. There are more electricity retailers operating in these areas than gas retailers, and significant proportions of households are aware of other suppliers.
- Between 15 and 20 per cent of households do not have confidence in their ability to choose an electricity or gas retailer and do not feel they have sufficient information to make an informed decision.

7.1 Awareness of competition in the retail electricity and gas markets

Ninety per cent of households in the Hunter, Gosford and Wyong areas are aware that they can choose their electricity retailer,[41] which is similar to the level of awareness in Sydney in 2006 (91 per cent). The level of awareness increases marginally as electricity consumption increases. (See Figure 7.1).

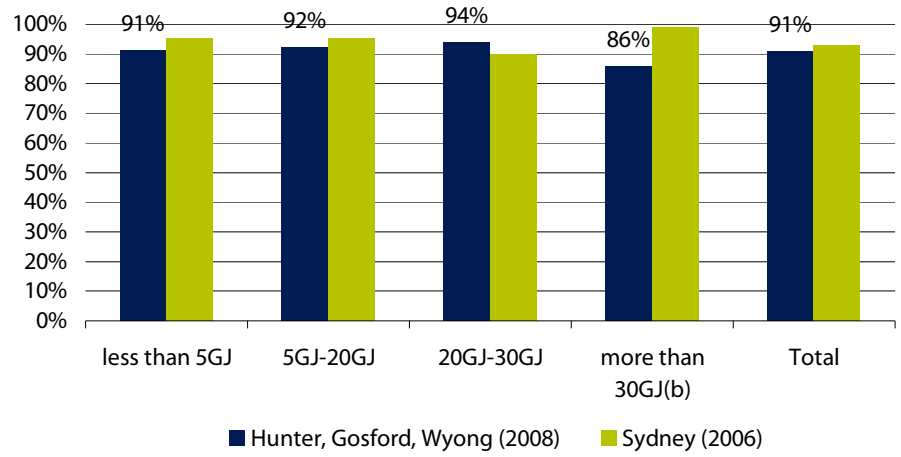
[41] The level of awareness in the individual areas are also similar -- see Appendix E Tables 8, 9 and 10.

Figure 7.1 Proportion of electricity customers who were aware that they could choose their electricity supplier, by electricity consumption



Ninety one per cent of households with mains gas in the Hunter, Gosford and Wyong areas are aware that they can choose their gas retailer.[42] Again, this is similar to Sydney in 2006 (93 per cent). There does not seem to be a relationship between the level of awareness and gas consumption. (See Figure 7.2.)

Figure 7.2 Proportion of households aware they can choose their gas supplier, by gas consumption[a]



a Only households with mains gas are included.

b Sydney 2006 data are for consumption exceeding 35GJ per year . The Hunter, Gosford and Wyong data for this category need to be interpreted with caution due to the low number of observations.

[42] There is a slightly higher level of awareness in the Hunter area (92 per cent) than in Gosford (89 per cent) or Wyong (87per cent).

7.2 Level of activity in the retail energy markets

Compared to Sydney in 2006, there has been somewhat more activity in the retail energy markets in the Hunter, Gosford and Wyong areas. This is particularly the case in the electricity market, where a higher proportion of households have been approached by their pre-FRC supplier to move to a market contract, and higher proportions of those offered contracts by their pre-FRC supplier or an alternative supplier have accepted these offers.

7.2.1 Proportion of households approached by their pre-FRC supplier to move to a market contract

In the electricity market, 54 per cent of households in the Hunter, Gosford and Wyong areas indicated they had been approached by their pre-FRC supplier (EnergyAustralia) and offered a market contract. This is higher than the proportion in Sydney (44 per cent). And, like in Sydney, low electricity users were less likely to have been approached to move to a market contract than medium to high users. (See Figure 7.3.)

In the gas market, only 35 per cent of households in the Hunter, Gosford and Wyong areas indicated they had been offered a market contract with their pre-FRC gas supplier (AGL), compared to 45 per cent in Sydney. The available information for these areas does not suggest that low gas users are less likely than others to be offered a contract. (See Figure 7.4.)

Figure 7.3 Proportion of electricity customers approached to enter a contract with their pre-FRC electricity supplier, by electricity consumption

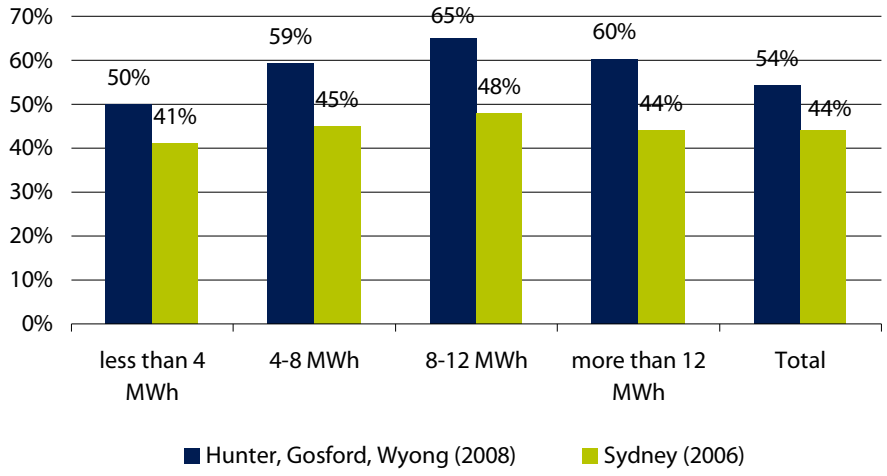
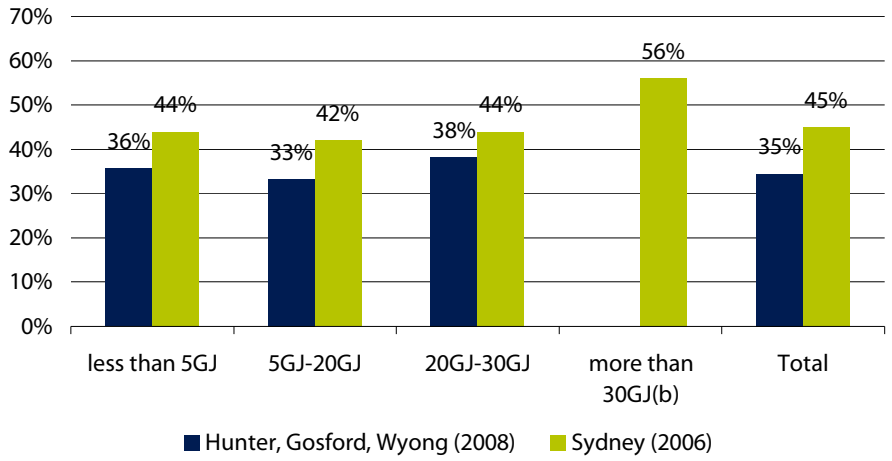


Figure 7.4 Proportion of gas customers approached to enter a contract with their pre-FRC gas supplier, by gas consumption[a]



a Only households with mains gas are included.

b Sydney 2006 data are for consumption exceeding 35GJ per year . Hunter, Gosford, Wyong data for this category are not shown due to the low number of observations.

7.2.2 Proportion of households approached to switch energy supplier

Just over half (53 per cent) of households in the Hunter, Gosford and Wyong areas have been approached to switch electricity supplier. This is very similar to Sydney in 2006 (54 per cent). Households with higher levels of consumption were more likely to have been approached to switch suppliers, but to a lesser extent than in Sydney. (See Figure 7.5.)

However, a significantly smaller proportion of households with mains gas have been approached to switch their supplier in the Hunter, Gosford and Wyong than in Sydney (29 per cent compared to 38 per cent). This is likely to be because there is less mains gas in the Hunter and Central Coast areas, as discussed in Chapter 4. But like Sydney, there is no clear relationship between a household's level of consumption and its likelihood of being approached switch gas supplier. (See Figure 7.6.)

Figure 7.5 Proportion of electricity customers approached to switch supplier, by electricity consumption

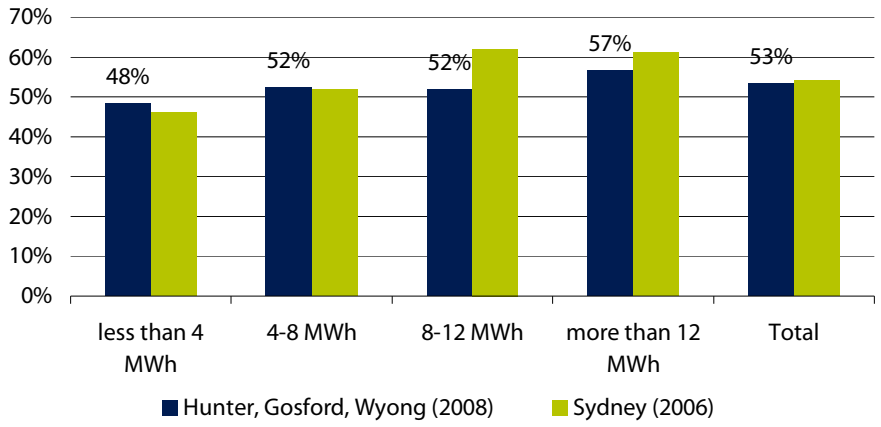
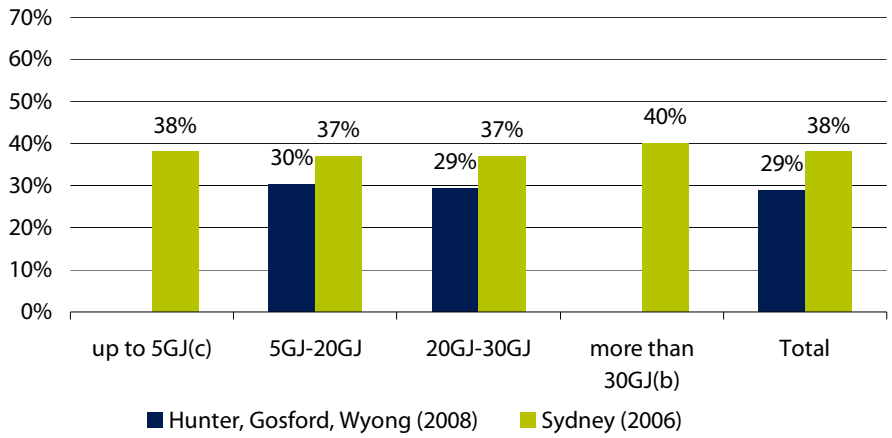


Figure 7.6 Proportion of gas customers approached to switch supplier, by gas consumption[a]



a Only households with mains gas are included.

b Sydney 2006 data are for consumption exceeding 35GJ per year. The Hunter, Gosford, and Wyong data for this category need to be interpreted with caution due to the low number of observations.

c The Hunter, Gosford and Wyong data for consumption below 5GJ are not shown due to the low number of observations.

7.2.3 Proportion of households approached that chose to enter into a market contract

The survey asked households who said they have been approached to enter into a market contract (either by their pre-FRC supplier or by an alternative supplier) whether they had taken up these offers. The results indicate that households in the Hunter, Gosford and Wyong areas are more likely to take up offers of a contract or switch supplier than households in Sydney in 2006. More specifically:

- 64 per cent of households approached to change to a market contract with their pre-FRC electricity supplier chose to do so (compared to 53 per cent in Sydney)
- 47 per cent of households approached to change to a market contract with their pre-FRC gas supplier chose to do so (38 per cent in Sydney)
- 42 per cent of households approached to switch electricity supplier chose to do so (34 per cent in Sydney)
- 53 per cent of households approached to switch gas supplier chose to do so (19 per cent in Sydney).

In addition, the results indicate that higher electricity users in the Hunter, Gosford and Wyong areas are more likely to switch supplier than smaller users. Interestingly, this is the opposite to the findings of the 2006 Sydney survey, where smaller users were found to be more likely to switch.[43] For example, 28 per cent of households in the Hunter, Gosford and Wyong areas who consume less than 4MWh per year chose to switch, compared to 40 per cent in Sydney in 2006. On the other hand, 41 per cent of households in the Hunter, Gosford and Wyong areas who consume between 8 and 12 MWh chose to switch compared to 30 per cent in Sydney in 2006.

Further, there is no apparent correlation between household income and the likelihood of taking up a contract, which is similar to Sydney in 2006. (See Figure 7.7 to 7.10 below, plus Appendix E Table 7.)

[43] This might be because significant proportions of households with mains gas in Sydney, who tend to be smaller users, accepted an electricity contract with their gas supplier.

Figure 7.7 Proportion of households who entered into an electricity contract with their pre-FRC supplier after being approached

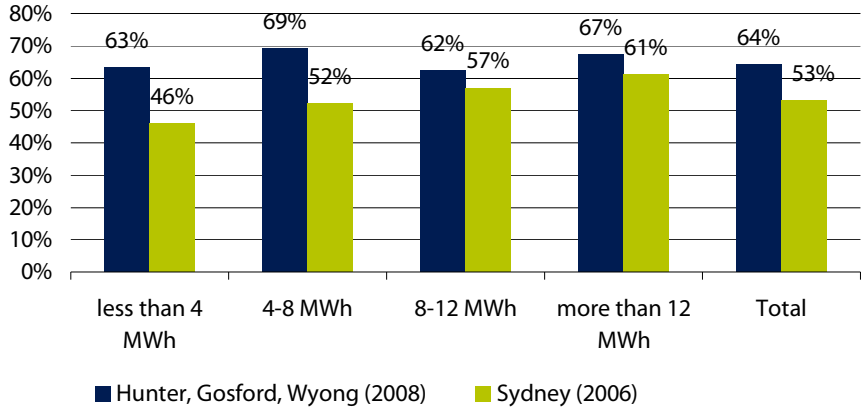
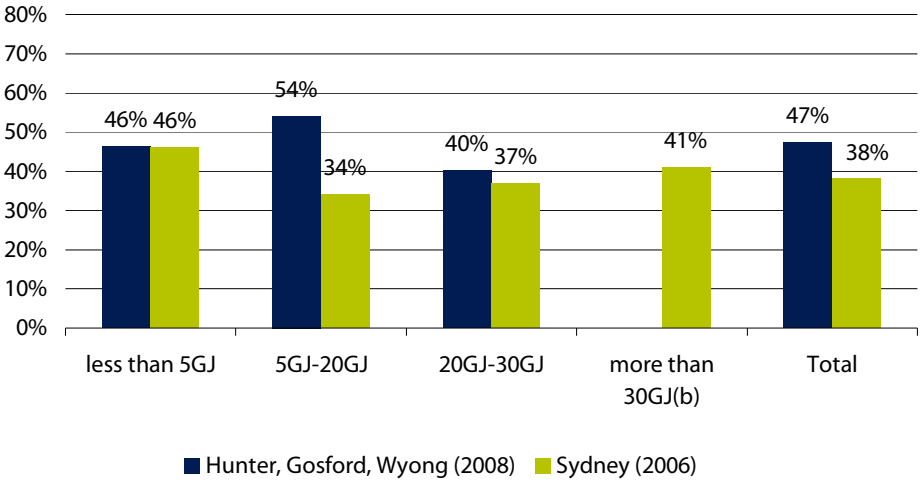


Figure 7.8 Proportion of households who entered into a gas contract with their pre-FRC supplier after being approached [a]



a . Only households with mains gas are included.

b Sydney 2006 data are for consumption exceeding 35GJ per year . The Hunter, Gosford and Wyong data for this category are not shown due to the low number of observations.

Figure 7.9 Proportion of electricity customers who switched after being approached to switch, by electricity consumption

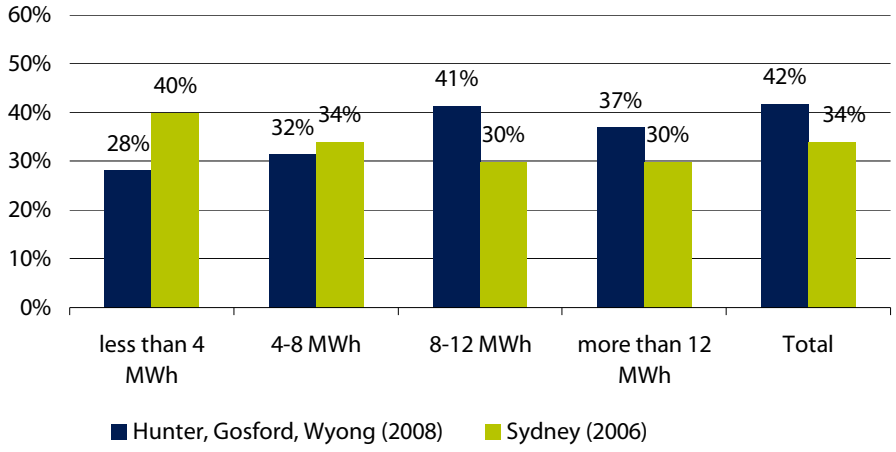
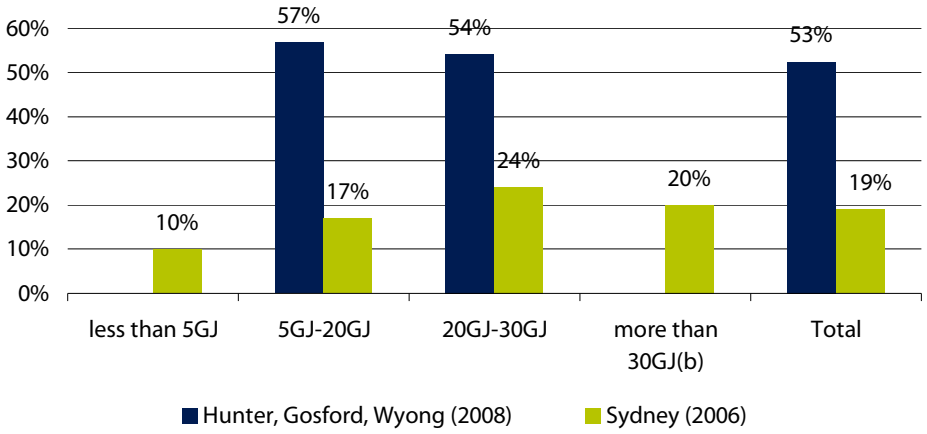


Figure 7.10 Proportion of gas customers who switched after being approached to switch, by gas consumption[a]



a Only households with mains gas are included.

b Sydney 2006 data are for consumption exceeding 35GJ per year. The Hunter, Gosford and Wyong data for this category are not shown due to the low number of observations

c The Hunter, Gosford and Wyong data for consumption below 5GJ are not shown due to the low number of observations.

The survey also asked households how many times they had switched their supplier of gas or electricity. Eighty four per cent of switching households had changed their electricity supplier only once, and 95 per cent had changed their gas supplier only once. Very few households (1 to 2 per cent) had switched more than twice.

7.2.4 Proportions of households that had approached suppliers and been refused contracts

The survey also asked respondents whether they had ever actively approached an electricity or gas supplier to ask about entering into a contract. The results indicate that only 7 per cent of households had done so.[44]

The survey also asked whether respondents had ever been refused a contract, either after they had been approached by a supplier or had approached a supplier themselves. A very small proportion (about 1 per cent) indicated that they had been refused a contract.[45]

7.3 Reasons for choosing to accept a market offer

In the Hunter, Gosford and Wyong areas, 68 per cent of households that had accepted a market contract with an electricity supplier (either their pre-FRC supplier or an alternative supplier) said their main reason for doing so was that it was cheaper (compared to 65 per cent in Sydney). Seven per cent indicated that they accepted an offer from their pre-FRC supplier because they were happy with this supplier. Other reasons were:

- to obtain the benefits of a combined electricity/gas bill (5 per cent)
- to purchase green energy (5 per cent)
- "the salesperson was persuasive" (3 per cent)
- "it offered other perks (magazines, DVD, etc)" (3 per cent).

Most households gave similar reasons for choosing to accept a market contract for gas supply. In particular, 52 per cent of those in the Hunter, Wyong and Gosford area said they chose to take up a gas market contract because it was cheaper (compared to 55 per cent for Sydney in 2006). However, a larger proportion said they did so to obtain the benefits of a combined electricity/gas bill (32 per cent compared to 21 per cent in Sydney). Seven per cent indicated that they accepted an offer from their pre-FRC supplier because they were happy with this supplier. Other reasons were:

- "the salesperson was persuasive" (2 per cent)
- "it offered other perks (magazines, DVD, etc)" (1 per cent).

44 Only households with mains gas are included in the analysis for gas.
45 Respondents were asked why they had been refused a contract but none provided an answer.

7.4 Reasons for remaining on regulated default tariff

Of those households who chose to remain on the default electricity tariff with their pre-FRC supplier the main reasons for doing so were that they:

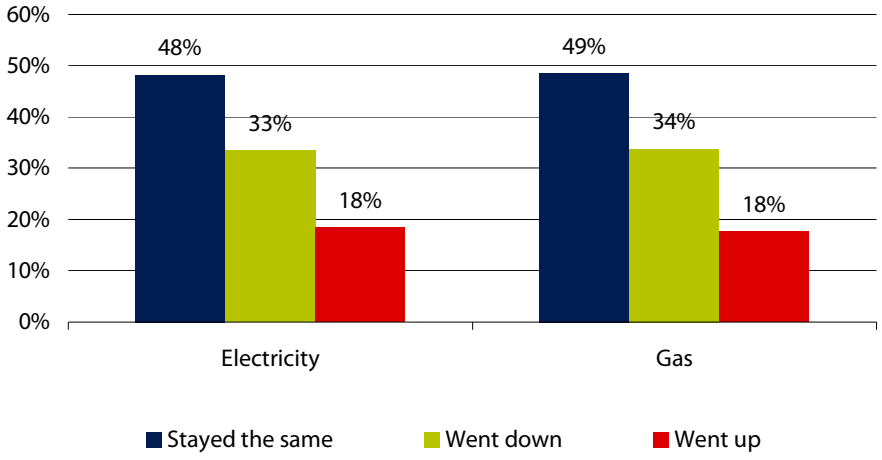
- were happy with their pre-FRC supplier (46 per cent for electricity and 43 per cent for gas)
- did not want to be locked into a contract (27 per cent for electricity and 19 per cent for gas)
- thought it was too much trouble to switch (9 per cent for electricity and 14 per cent for gas)
- thought it was no cheaper (7 per cent for electricity and gas).

While these results are broadly similar to those of the 2006 Sydney survey, there are a few notable exceptions. First, a higher proportion of households in the Hunter, Gosford and Wyong areas did not wish to be locked into an electricity contract than in Sydney in 2006 (27 per cent compared to 17 per cent). Second, higher proportions of households in the 2008 survey area indicated that they were happy with their pre-FRC electricity and gas suppliers compared to households in Sydney in 2006 (46 and 43 per cent compared to 38 and 31 per cent in Sydney). Third, a smaller proportion of households in the Hunter, Gosford and Wyong thought the offer was no cheaper (7 per cent compared to 13 to 14 per cent in Sydney).

7.5 Satisfaction with market contracts

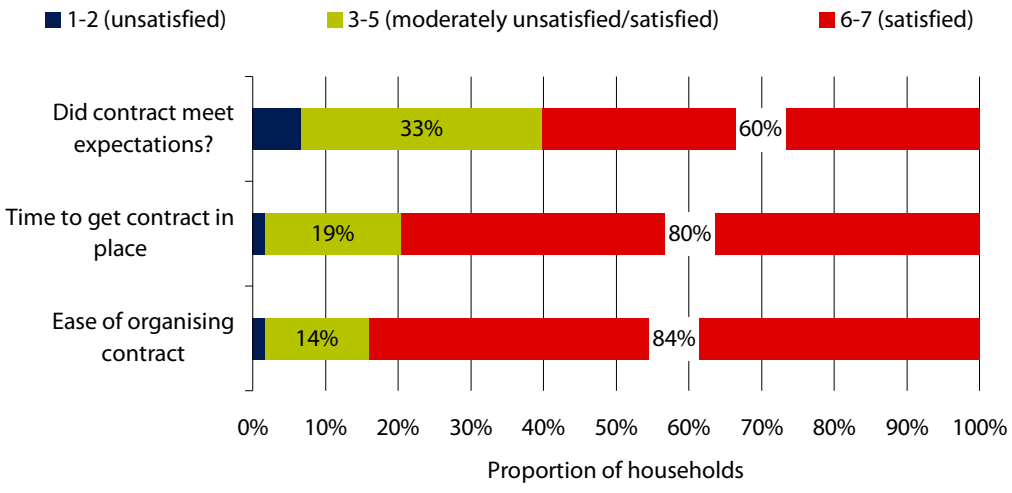
The survey asked those households in the Hunter, Gosford and Wyong area that had entered into a market contract about their satisfaction with the contract. In particular, it asked whether they thought their bill had stayed the same, gone down or gone up after going onto a contract. Only 33 per cent of electricity customers and 34 per cent of gas customers felt that their bills had gone down after going onto a contract. Almost 50 per cent felt that their bills had stayed the same, and 18 per cent felt that their bills had increased. (See Figure 7.11.)

Figure 7.11 Perceived impact on bills after going onto a contract



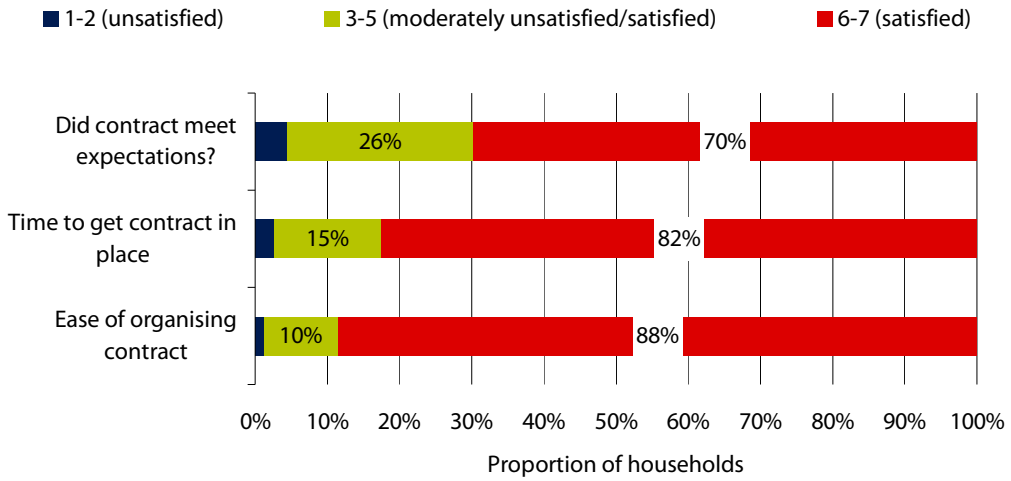
These households were also asked whether the contract met their expectations. Of those on an electricity contract, about 60 per cent indicated they are satisfied, while 33 per cent said they don't feel strongly either way, and 7 per cent said they are unsatisfied. Most said they are satisfied with the time it took to get the contract in place and the ease of organising a contract. (See Figure 7.12.)

Figure 7.12 Satisfaction with electricity contract



Of those on a gas contract, 70 per cent indicated that the contract had met their expectations, and 84 to 88 per cent said they are satisfied with the time it took to get the contract in place and the ease of organising a contract (7.13).

Figure 7.13 Satisfaction with gas contract



7.6 Penetration and awareness of alternative retailers

The survey asked respondents to identify their current electricity and gas retailer, and indicate if they are aware of any other retailers. Figure 7.14 shows that EnergyAustralia, the pre-FRC electricity supplier in the Hunter, Gosford, Wyong areas, remains the dominant electricity retailer, supplying electricity to nearly three-quarters of households. It also supplies gas to about one-third of households. The pre-FRC gas supplier, AGL remains the dominant gas retailer.

There are more electricity retailers than gas retailers operating in the Hunter, Gosford and Wyong areas, and households are aware of more electricity retailers than gas retailers. For example, 26 per cent of households know that Integral Energy is an electricity retailer, and 18 per cent know that AGL and Origin Energy are electricity retailers. In contrast, most households are only aware that AGL and EnergyAustralia are gas retailers. (See Figure 7.15.)

Figure 7.14 Current electricity and gas retailer (Hunter, Gosford, Wyong area)

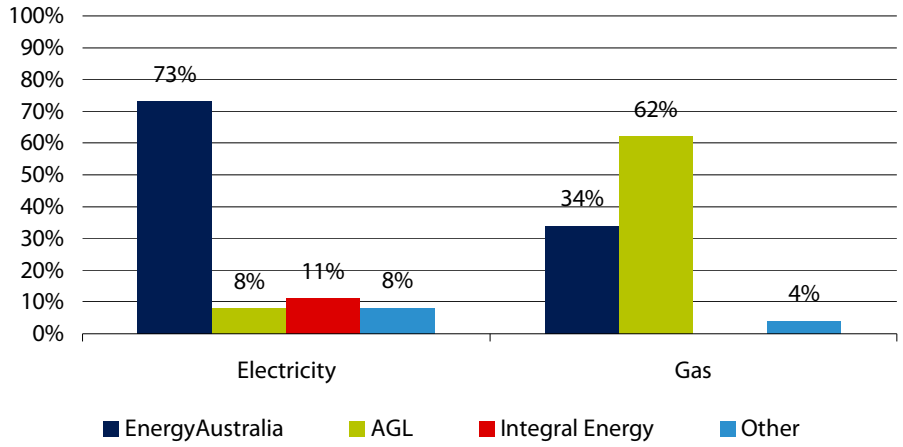
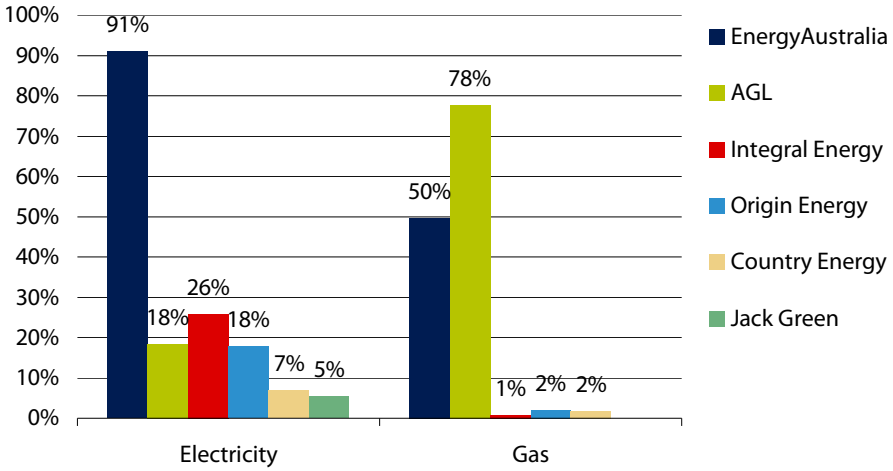


Figure 7.15 Proportion of households that are aware of other electricity and gas retailers

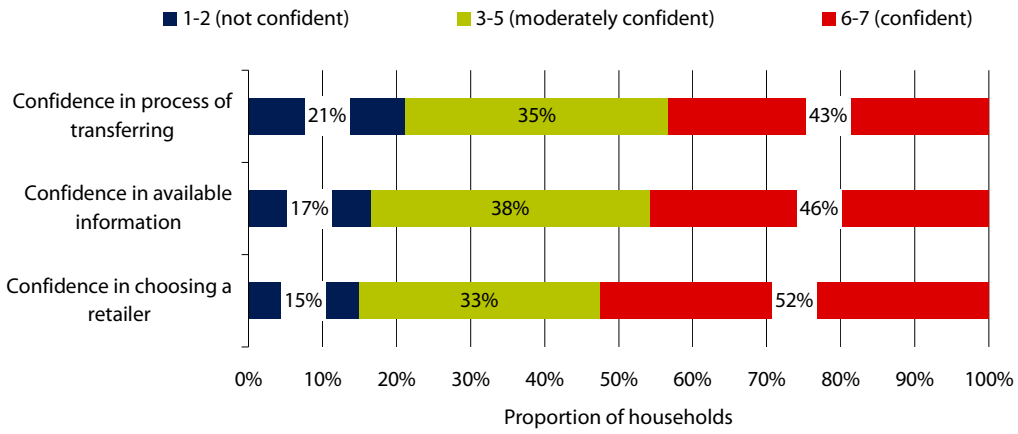


7.7 Confidence in choosing a retailer

The survey asked households about their confidence in being able to choose their electricity or gas retailer. Overall, about half said they are confident in their ability to choose a retailer, to access the information they need and the process of transfer. (See Figure 7.16.)

Residential customers appear to be most confident in their ability to choose a retailer, less confident that they have the information they need, and least confident about the process of transferring. This suggests that competition may be improved if customers are provided with better information about alternative contract options and the transfer process.

Figure 7.16 Confidence in the process of choosing a gas and/or electricity retailer



7.8 Understanding of complaint handling process

The survey asked respondents who they would go to if they had a problem or a complaint. Most customers said they would go to their retailer/supplier. Only a very small proportion said they would go to the Energy and Water Ombudsman. (See Table 7.1.)

Table 7.1 Who customers say they would go to with a complaint (%)

	Electricity	Gas
Retailer/supplier	92	94
Energy and Water Ombudsman	5	4
Other	3	3

Appendices

A Overview of the survey design and methodology

IPART engaged McLennan Magasanik Associates (MMA), in combination with McNair Ingenuity, to undertake interviews with residential households on its behalf in the Hunter, Gosford and Wyong areas. MMA was also responsible for obtaining consumption data from the relevant energy and water utilities.

A.1 Data collection method

A face-to-face (door to door) interview methodology was the main method used for this survey. This approach was adopted to

- ensure maximum comparability with past surveys in the Sydney metropolitan region
- obtain consent signatures from respondents to permit water, gas and electricity agencies to release their billing data for inclusion in the analysis.

However, delays in obtaining the sampling frames, an unseasonal month of rain and storms, and the impact that the weather delay had on the allocation of staff resources all slowed the rate at which interviews could be completed. The ongoing door to door interviews were therefore supplemented with computer aided telephone interviewing (CATI) with consent forms obtained by post.

The survey data were analysed to establish whether the different methods of interviewing resulted in significant differences in the response profiles. The analysis found that CATI achieved a closer approximation of the population's ratio of males to females and a slightly closer approximation of the median household income of $46,500, calculated from ABS data. There were also some differences in the proportions of household types, with CATI being more likely to interview couples with adult children (15 years and over) and door to door being more likely to interview mature couples with no children or a single person. However, none of these differences seemed to have had a significant effect on the results.

Interviews were conducted from March to July 2008.

A.2 Sample size

A total of 1,672 interviews were completed in Hunter Water Corporation's area of operation, 529 in Gosford and 407 in Wyong.[46]

The number of door-to-door and CATI interviews in each area are shown in Table A1.

Table A.1 Number of interviews by area and interview method

Region	Door-to-door	CATI	Total
Hunter	1,340	332	1,672
Gosford	442	87	529
Wyong	254	153	407
Total	2,036	572	2,608

A.3 Sample selection

While the initial methodology had proposed using consumption data as the basis for the sample frame, delays in obtaining this data led to the adoption of a random sample methodology based on postcodes.

Approximately 60 postcodes fall within the boundaries of Gosford Council, Wyong Council and Hunter Water area. Start points were randomly assigned within each postcode, in proportion to the number of households in the territory. Interviewers progressed from each start point address in a pre-defined pattern, approaching every third dwelling to attempt to achieve an interview. This skip pattern was a balance between having large distances to walk, while avoiding interviewing next-door neighbours.

In this limited pattern method, an interviewer cannot progress beyond the initial sample set until they have achieved an interview, had a household refuse to participate or failed to make contact with a household after three attempts at different times of the day (for example, morning and afternoon) and on different days. When the interviewer had no more households to approach, a new start point was provided. This process greatly improves the representativeness of the sample because it ensures that a sample is thoroughly exhausted before additional addresses are added. Harder to reach households (such as households who are away from home all day) are more likely to be included in the sample.

46 Interviews are counted only if signed consent forms were received.

Households were excluded from the sample if:

- They had occupied the dwelling for less than 15 months. The threshold of 15 months was selected to ensure that a complete year's worth of consumption data would be available, so that any seasonal variation would be taken into account in the annualised consumption figures.
- The dwelling was not the primary place of residence (eg holiday homes).
- The dwelling was a mobile home.

As various factors delayed the fieldwork phase, it was decided to supplement the door to door interviewing with CATI interviews. These used random digit dialling to randomly select households within the target area. Analysis showed no significant difference between the data collected door to door and the data collected by telephone.

Table A.2 Postcodes used for sampling

Postcode	*** Postcode is across territories	Postcode	*** Postcode is across territories
Hunter Water			
2259	***	2301	
2264		2302	
2265		2303	
2267		2304	
2278		2305	
2280		2306	
2281	***	2307	
2282		2308	
2283		2315	
2284		2316	
2285		2317	
2286		2318	
2287		2319	
2289		2320	
2290		2321	
2291		2322	
2292		2323	
2293		2324	
2294		2325	
2295		2326	
2296		2327	
2297		2334	
2298		2335	
2299		2420	

Postcode	*** Postcode is across territories	Postcode	*** Postcode is across territories
2300			
Gosford			
2083		2257	
2250	***	2260	
2251		2261	***
2256		2775	
Wyong			
2250	***	2262	
2258		2263	
2259	***	2281	***
2261	***		

A.4 Pre-survey letter and advertisements in local newspapers

As an initial strategy to increase the response rate and to verify the official nature of the survey, press releases were sent to local media outlets, and a series of advertisements run. These described the aims of the projects, and alerted residents that they may be approached by an interviewer on IPART's behalf. (Attachment C.)

In addition, a formal letter on the Tribunal's letterhead was left with each household providing an invitation to participate and an explanation of the survey. This letter was presented to each participant as part of the introduction to the study, verifying the interviewer's presence, and giving the potential respondent some context. (Attachment D.)

The letter provided an IPART telephone number to call in case of need or for verification in addition to McLennan Magasnik Associates' (MMA) number, and McNair Ingenuity's hotline.

A.5 Piloting

An initial 30 face-to-face pilot interviews were conducted in Bateau Bay, Kariong, Thornton and Lake Munmorah in February 2008. A few changes were made to the questionnaire based on ambiguities identified during the pilot stage. These were remedied by slightly altering the flow of several questions, and by providing additional interviewer briefing.

A.6 Response Rate

An overall response rate of 33 per cent was achieved for the door to door interviews and 15 per cent for CATI. This is based on households that were eligible but refused to participate when interviewers called.

The response rates for the three areas were as follows:

Table A.3 Response rates by region

Region	Door-to-door	CATI
Hunter	37%	14%
Gosford	29%	15%
Wyong	26%	18%
Total	33%	15%

The CATI response rate is in line with other CATI work – the anticipated response rate is around one in every six calls (17 per cent).

The Hunter door to door interviews had a better response rate than the other regions, probably because this was the first region in which interviews were conducted, prior to the severe weather events that delayed fieldwork. Householders are less inclined to stand on the doorstep to complete an interview in inclement weather, and are also less likely to invite the interviewer inside if they are wet.

A.7 Consumption information from utilities

In order to obtain billing and consumption data for electricity, gas and water, survey participants were asked to sign a consent form allowing the relevant utilities to release that information to McLennan Magasanik Associates for inclusion in the data analysis. Participants who refused permission were not included in the survey.

Separate consent forms were required for electricity, gas and water. In some households, the accounts were in different names, so each account holder had to sign the appropriate form.

The utilities were asked to provide actual consumption data at the household level by billing period. Data provided by Hunter Water Corporation, Gosford Council, Wyong Council and EnergyAustralia listed all households within their territory who had been resident for at least 15 months.

Address, name and billing details provided on the signed consent forms were used to match the survey data to the consumption data. Only data that could be reliably matched to the respondents were retained.

As the quality and content of the consumption data varied widely, a sophisticated database was built to test and match data from the different utilities for each

respondent. This allowed MMA to refine annualised consumption data figures for each respondent, and to identify and exclude any anomalous data.

The procedure was different for the gas consumption data. MMA collated address and metering details, and provided this to Alinta (now Jemena), who extracted the relevant consumption data records internally, and provided these to MMA.

Table A.4 provides a breakdown of the percentage of respondents for whom consumption data were obtained.

Table A.4 Proportion of households for whom consumption data could be extracted

Utility	Proportion of households with consumption information
Hunter Water Corporation (water)	92%
Gosford Council (water)	85%
Wyong Council (water)	64%
EnergyAustralia (electricity)	81%
Alinta (now Jemena) (gas)	74%

A.8 Annualised billing and consumption data

Billing and consumption data were provided for each billing period by the utilities.[47] Billing periods for the last year added to 365 days for some, but not for others. For those for whom billing periods did not add to 365 days, the data were annualised. This involved dividing the total consumption for the billing periods by the number of days represented by these periods and then multiplying that amount by 365 days. Billing and consumption data are, therefore, reported on an 'annualised' or 'per annum' basis (ie, over 365 days) for water, gas and electricity.

A.9 Weighting

The purpose of weighting is to make the sample more closely resemble the population under study. In weighting, each respondent in the data is assigned a weight to reflect its importance relative to other respondents. A weight greater than one increases the importance of the respondent, less than one decreases the importance of the respondent, and one represents an unweighted case.

Weighting is most widely used to make the sample data more representative of the target population on specific characteristics. Weighting should be applied with caution, and the weighting procedure should be documented and included in the report, because weights can significantly adjust the data.

47 The billing periods varied from utility to utility, as their meter reading cycles were different. While quarterly billing was most common, four monthly and six monthly periods were also present.

A.9.1 Regional weights

This survey covered the areas of Hunter Water Corporation, Gosford City Council, and Wyong Shire Council. In order to bring each area's contribution to the cumulative results into proportion with the number of households within it, MMA prepared weights using ABS Census data for the local government areas which made up these areas, as shown in Table A.5.

Table A.5 Weights for regions

Region	Weight
Hunter Water area	0.973
Gosford	0.979
Wyong	1.137

A.9.2 Income weights

In all three regions, low income households were over-sampled and higher income households were under-sampled. This result is typical of door to door surveys because low income people are more likely to be at home when the interviewer calls and are more likely to participate.

To overcome this potential bias, MMA used ABS data from the 2006 Census to weight the respondent data on household income for each region. The weighted income distribution matches the distribution of household income for each region from the 2006 Census. The resulting income weights are shown in Table A.6.

Table A.6 Income weights

Income range	Hunter	Gosford	Wyong
Less than $41,600	0.799	0.899	0.891
$41,600 to $104,000	1.224	1.082	1.065
More than $104,000	1.408	1.137	1.592

These income weights correct for income distribution, but their application distorts other characteristics of sample. For example, income weights distort the distribution of household types compared to the 2006 Census.[48] Table A.7 shows that, in the Hunter area, the application of income weights increases the percentage of couple families with children from 34 per cent to 39 per cent of all households, compared to 31 per cent according to census data.

[48] Calculated from *2006 Census of Population and Housing*, Cat. No. 2068.0 - 2006 Census Tables for the relevant local government areas (LGAs).

Table A.7 The effect of income weights on household types compared to the 2006 Census data in the Hunter area

Household type	2006 Census data (ABS)	Unweighted Survey data	Income weighted survey data
Couple family with no children	27%	30%	29%
Couple family with children	31%	34%	39%
Lone person	25%	25%	22%
One parent/other	17%	11%	10%
Total	100%	100%	100%
Gosford			
Couple family with no children	27%	32%	32%
Couple family with children	30%	35%	37%
Lone person	27%	22%	21%
One parent/other	16%	11%	11%
Total	100%	100%	100%
Wyong			
Couple family with no children	27%	33%	32%
Couple family with children	30%	33%	36%
Lone person	26%	21%	19%
One parent/other	17%	13%	13%
Total	100%	100%	100%

One effect of the income weights is therefore to over-estimate the proportion of households that comprise couples with children. These tend to be larger households, who are also likely to be larger consumers of water and energy (see chapters 3, 4 and 5). Applying the income weights may therefore result in an over-estimate of average consumption because it over-estimates the number of large households.

Because the income weights cause other distortions in the sample, and in particular may over-estimate average consumption, the data provided in this report have been corrected for regions only (ie, only the regional weights have been applied). Income weights have been applied only in the data tables that analyse responses by income category (Attachment E, Tables 7 to 10).

A.10 Potential sample biases

Even though every attempt was made to select a random sample, it is important to consider the potential biases within the survey sample when interpreting the data. Potential biases might include:

- As previously mentioned, door-to-door surveys typically have a low income bias because low income people are more likely to be at home when the interviewer calls and are more likely to participate.

- Response rates may have been affected by concern over privacy issues and giving of personal information.
- Unit and apartments are under-represented in the survey sample because many are difficult to access as they are security buildings. Fortunately this is less of a problem in the survey areas than in the Sydney metropolitan area since flats and units represent only about 15 per cent of total dwellings compared to about 36 per cent in the Sydney metropolitan area.

B The 2008 questionnaire

MMA J1582 IPART household survey, version 9

Last revised 7 March 2008

START TIME | _____:_____ |

Region | ___ | Postcode| ___ | ___ | ___ | ___ |

SURVEY ON ELECTRICITY, GAS, AND WATER

S0 Have you lived at this address for more than 18 months? Yes 1
No 2 **TERMINATE**

S1 Code best description of structure containing household

Separate house	1
Dwelling / Non-dwelling combined eg shop, houses *	2
Semi-detached / terrace / house / villa unit / town house / duplex	3
Granny flat	4
Low rise flats / units (1 or 2 storeys)	5
Flats (3 storeys)	6
High rise flats / units (4 or more storeys)	7
Mobile or improvised dwelling DO NOT INTERVIEW	8

**Interviewer note: If a dwelling and shop / business are combined, questions refer only to the dwelling, not the business.*

INTRODUCTION

Good (…). I'm (…) from McNair Ingenuity Research, the national market research company. Today we are conducting a survey on electricity, gas and water. (You may have received a letter about it in the last couple of days?) We would like to speak to the person who normally pays the household bills.

S2 Is this your permanent residence or a holiday home?

Permanent	1	**PROCEED**
Holiday	2	**TERMINATE**

S4 If a separate house ask: Can you tell me the approximate size of your block of land?

Small (Less than 500 square metres)	1
Medium (500 to 900 square metres)	2
Large (More than 900 square metres)	3

If the respondent does not have good English language skills, ask if they would like an interpreter.
If Yes, then ask LANGUAGE AND MAKE AN APPOINTMENT TIME FOR AN INTERPRETER:

S5 What is the language which you speak at home?

Arabic	1
Cantonese	2
Greek	3
Italian	4
Mandarin	5
Spanish	6
Turkish	7
Vietnamese	8
Other (specify)	9

Appointment for interpreter to conduct interview:

Respondent Name: _____

Phone number: _____

SECTION 0: CONSENT FORMS

One of the aims of this survey is to see how much electricity, gas and water households use, and relate this to the appliances they have and the size of the household.

To do this we wish to find out how much water, gas and electricity your household has used in the last 12 months and how much you pay to the utilities. We need your permission to obtain this information.

HAND RESPONDENT Electricity, water and gas (check if they have gas) CONSENT FORMS.

Interviewer notes:

- *THE PERSON **WHOSE NAME IS ON THE BILL** MUST BE THE PERSON WHO SIGNS THE CONSENT FORMS. IF THAT PERSON IS UNAVAILABLE, MAKE AN APPOINTMENT TO COME BACK WHEN THEY ARE HOME. DO NOT CONTINUE THE INTERVIEW IF THE PERSON WHOSE NAME IS ON THE BILLS IS NOT AVAILABLE TO SIGN.*
- *IF THE BILL NUMBERS ARE UNAVAILABLE, A SIGNATURE AND STREET ADDRESS IS SUFFICIENT. [BUT PLEASE STRESS IMPORTANCE OF ACCOUNT, DPI AND NMI NUMBERS]*
- *SHOW RESPONDENT THE ADDITIONAL INFORMATION ON THE BACK OF THE LETTER WHICH EXPLAINS WHAT WILL HAPPEN TO THEIR BILLING INFORMATION.*
- *<u>IMPORTANT!!!</u> EMPHASISE THAT THE INFORMATION AND THEIR SIGNATURE IS ONLY BEING USED FOR THIS RESEARCH PROJECT. ALL PERSONAL INFORMATION WILL BE DESTROYED AT THE END OF THIS RESEARCH PROJECT IN AUGUST THIS YEAR.*

Would you please sign these forms, which permit your electricity, gas and water suppliers to provide us with this information?

We will not release your name to anyone else and as soon as the billing information is provided to us from the energy suppliers, we will delete your name from our records.

IF REFUSE TO GIVE PERMISSION, SAY:

This survey is being conducted on behalf of the Independent Pricing Tribunal. The Tribunal is concerned that its decisions should be fair. Therefore we need to have the consumer viewpoint from all sections of the community. We would very much ask that you give permission for us to obtain information on your electricity, gas and water consumption by signing these forms.

If you prefer, your account number could be used rather than your name.

0Q1a	Water authorisation signed and returned to interviewer	1
	Water authorisation not signed	2

0Q1b	Electricity authorisation signed and returned to interviewer	1
	Electricity authorisation not signed	2
	Electricity generated locally by private generator / not on national grid	3

0Q1c	Gas authorisation signed and returned to interviewer	1
	Gas authorisation not signed	2

IF CONSENT FORMS <u>NOT</u> SIGNED, TERMINATE INTERVIEW. OTHERWISE CONTINUE.

SECTION 1: ELECTRICITY AND GAS MARKETS

AQ1. Do you use gas, either mains or cylinder gas, for your regular household heating or cooking?

Yes, mains	1	Ask all grey questions as well as electricity
Yes, cylinder (large, not portable)*	2	Do NOT ask gas questions
No	3	Do NOT ask gas questions
Don't know	9	Do NOT ask gas questions

**Interviewer note: Cylinder must be outside and non-portable*

AQ2. From January 2002 all households in NSW have been able to choose the company they buy their (….) from. Were you aware of this?

	AQ2_1 Electricity	**AQ2_2 Gas**
Yes	1	1
No	2	2
Don't know	9	9

AQ3a. Which company do you buy electricity from at the moment?

AQ3b And which other companies do you think you could buy electricity from? ***DO NOT PROMPT***

Any others? ***(ACCEPT MULTIPLES)***

	Q3a	**Q3b**
EnergyAustralia	1	1
AGL	2	2
TRUenergy	3	3
Country Energy	4	4
Integral Energy	5	5
Jack Green	6	6
Power Direct	7	7
Origin Energy	8	8
Other (specify) _____	9	9
Don't know / Can't recall	10	10

CONTINUE IF USE MAINS GAS in AQ1. OTHERWISE SKIP TO AQ5.

AQ4a. Which company do you buy gas from at the moment?

AQ4b And which other companies do you think you could buy gas from? Any others? ***DO NOT PROMPT (ACCEPT MULTIPLES)***

	Q4a	**Q4b**
EnergyAustralia	1	1
AGL	2	2
TRUenergy	3	3
Country Energy	4	4
Other (specify) _____	5	5
Don't know / Can't recall	6	6

AQ5 Have you ever been approached by EnergyAustralia to enter into a contract to buy electricity from them?

Interviewer note: 'Approach' must be a phone call, visit, a specific letter addressed to occupants, a flyer in the letter box, or an invitation to ask for an offer when moving house. A general notice attached to a bill is not defined as an 'approach'.

Yes	1	**CONTINUE**
No	2	**SKIP TO AQ7**
Don't know / Can't recall	9	**SKIP TO AQ7**

AQ6 As a result, have you ever entered into a contract with EnergyAustralia to buy electricity?

Yes	1
No	2
Don't know / Can't recall	9

AQ7 Have you ever been approached by any other companies asking you to buy electricity from them?

Yes	1
No	2
Don't know / Can't recall	9

AQ8 Have you ever approached any companies to ask about buying your electricity from them?

Interviewer note: MUST BE ENQUIRIES ABOUT CONTRACTS not because they were moving house

Yes	1	**CONTINUE**
No	2	**SKIP TO AQ12**
Don't know / Can't recall	9	**SKIP TO AQ12**

CONTINUE FOR RESPONDENTS WHO WERE CONTACTED in AQ5 or AQ7 OR MADE CONTACT IN AQ8. OTHERWISE SKIP TO A12.

AQ9a Has any electricity company ever refused to make you an offer?

Yes	1	**CONTINUE**
No	2	**SKIP TO AQ10**
Don't know / Can't recall	9	**SKIP TO AQ10**

AQ9b What reasons were you given for not being made an offer? ***(RECORD VERBATIM)***

(PROBE FULLY)

_____

_____

_____

AQ10 Have you ever changed the company that sells electricity to your home?

Yes	1	**CONTINUE**
No	2	**SKIP TO AQ12**
Don't know / Can't recall /	9	**SKIP TO AQ12**

AQ11 In total, how many times have you changed the company that sells electricity to your home since January 2002? ***(RECORD NUMBER)***

Number of times	
Don't know / Can't recall	99

CONTINUE IF USE MAINS GAS in AQ1. OTHERWISE SKIP TO AQ18a.

AQ12 Have you ever been approached by AGL to enter into a contract to buy gas from them?

Interviewer note: 'Approach' must be a phone call, visit, a specific letter addressed to occupants, a flyer in the letter box or an invitation to ask for an offer when moving house. A general notice attached to a bill is not defined as an 'approach'.

Yes	1	**CONTINUE**
No	2	**SKIP TO AQ14**
Don't know / Can't recall	9	**SKIP TO AQ14**

AQ13 As a result, have you ever entered into a contract with AGL to buy gas from them?

Yes	1
No	2
Don't know / Can't recall	9

AQ14 Have you ever been approached by any other companies asking you to buy gas from them?

Yes	1
No	2
Don't know / Can't recall	9

AQ15 Have you ever approached any companies to ask about buying your gas from them?

Interviewer note: MUST BE ENQUIRIES ABOUT CONTRACTS not because they were moving house or connecting new gas supply

Yes	1	**CONTINUE**
No	2	**SKIP TO AQ18a**
Don't know / Can't recall	9	**SKIP TO AQ18a**

CONTINUE FOR RESPONDENTS WERE CONTACTED in AQ12 or AQ14 OR WHO MADE CONTACT IN AQ15. OTHERWISE SKIP TO AQ18.

AQ16a Has any gas company ever refused to make you an offer?

Yes	1	**CONTINUE**
No	2	**SKIP TO AQ17A**
Don't know / Can't recall	9	**SKIP TO AQ17A**

AQ16b What reasons were you given for not being made an offer? ***(RECORD VERBATIM)***

(PROBE FULLY)

_____

_____

_____

AQ17a Have you ever changed the company that sells gas to your home?

Yes	1	**CONTINUE**
No	2	**SKIP TO AQ18A**
Don't know / Can't recall	9	**SKIP TO AQ18A**

AQ17b In total, how many times have you changed the company that sells gas to your home since January 2002? ***(RECORD NUMBER)***

Number of times	
Don't know / Can't recall	99

IF NO APPROACH FOR ELECTRICITY (AQ5,7 AND 8 ARE ALL NO/DON'T KNOW) ***AND*** *NO APPROACH FOR GAS (AQ12,14 AND 15 ARE ALL NO/DON'T KNOW), THEN SKIP TO AQ23*

IF HAVE ENTERED A CONTRACT FOR ELECTRICITY IN AQ6 OR AQ10, ASK AQ18a for electricity.

IF HAVE ENTERED A CONTRACT FOR GAS IN AQ13 OR AQ17a, ASK AQ18b for gas.

OTHERWISE SKIP TO SCREENER FOR AQ20.

AQ18a What was the main reason that you entered into a contract with the company that sells electricity to your home? *DO NOT PROMPT (**SINGLE RESPONSE)***

AQ18b What was the main reason that you entered into a contract with the company that sells gas to your home? *DO NOT PROMPT (**SINGLE RESPONSE)***

	AQ18a Electricity	**AQ18b Gas**
It was cheaper	1	1
It offered a combined electricity and gas bill	2	2
The salesperson was persuasive	3	3
The other supplier offered better service	4	4
I was unhappy with my previous supplier	5	5
It offered other perks (Magazines, DVD, etc)	6	6
It offered green energy	7	7
Other (specify) _____	8	8
Don't know	9	9

AQ19 And what happened to your bills after going onto a contract?

AQ19a electricity bills?

AQ19b gas bills?

	AQ19a Electricity	**AQ19b Gas**
They stayed the same	1	1
They went down	2	2
They went up	3	3
Don't know / can't remember	9	9

IF HAVE NOT ENTERED A ELECTRICTY CONTRACT WITH ANY COMPANY (NO IN AQ6 AND IN AQ10), ASK AQ20a. OTHERWISE SKIP TO SCREENER FOR AQ20b.

AQ20a What was the main reason that you did not enter into a contract with a company that could sell electricity to your home? *DO NOT PROMPT **(SINGLE RESPONSE)***

IF HAVE NOT ENTERED A GAS CONTRACT WITH ANY COMPANY (NO IN AQ13 AND AQ17a), CONTINUE. OTHERWISE SKIP TO SCREENER FOR AQ21a.

AQ20b What was the main reason that you did not enter into a contract with a new company that could sell gas to your home? *DO NOT PROMPT **(SINGLE RESPONSE)***

	AQ20a Electricity	**AQ20b Gas**
It was no cheaper	1	1
I was happy with my current supplier	2	2
I had never heard of the other supplier	3	3
It was too much trouble to switch	4	4
I did not want to be locked into a contract	5	5
I did not like being pushed by salesman	6	6
I did not have enough information	7	7
Other (specify) _____	8	8
Don't know	9	9

SHOWCARD AQ21/22

ASK ALL WHO HAVE ENTERED INTO A CONTRACT FOR ELECTRICITY IN AQ6 OR AQ10.

AQ21a. I'd like you to think about the contract you have for buying electricity and I'd like you to rate your satisfaction with various aspects of it. Please use a scale of 1 to 7 where 1 means 'very dissatisfied' and 7 means 'very satisfied'. How satisfied were you with… *(READ OUT) (NA = 8, DK = 9)*?

RANDOM / ROTATE								NA	DK
AQ21a_1 How easy it was to organise the contract	1	2	3	4	5	6	7	8	9
AQ21a_2 The length of time it took to get your contract in place	1	2	3	4	5	6	7	8	9
AQ21a_3 The extent to which the contract has met your expectations	1	2	3	4	5	6	7	8	9

IF AQ21a_3 IS NA OR DK, SKIP TO SCREENER FOR AQ22a. OTHERWISE CONTINUE.

AQ21b Why did you give the extent to which your contract has met your expectations a rating of [INSERT FROM AQ21a_3]? ***(RECORD VERBATIM)***

_____

_____

_____

ASK ONLY IF GAS CONNECTED AND HAVE ENTERED A GAS CONTRACT IN AQ13 OR AQ17a.

AQ22a. And for your contract to buy gas. How would you rate your satisfaction with *(READ OUT)? (Please use the same scale, where 1 means 'very dissatisfied' and 7 means 'very satisfied'*

RANDOM / ROTATE								NA	DK
AQ22a_1 How easy it was to organise the contract	1	2	3	4	5	6	7	8	9
AQ22a_2 The length of time it took to get your contract in place	1	2	3	4	5	6	7	8	9
AQ22a_3 The extent to which the contract has met your expectations	1	2	3	4	5	6	7	8	9

IF AQ22a_3 IS NA OR DK, SKIP TO AQ23. OTHERWISE CONTINUE.

AQ22b Why did you give the extent to which your contract has met your expectations a rating of [INSERT FROM AQ22a_3]? ***(RECORD VERBATIM)***

_____

_____

_____

ASK EVERYONE

Summary of Opinions on FRC

Now I'd like to ask you a few questions about your feelings towards competition in the electricity and gas markets in New South Wales.

SHOWCARD AQ23/24/25

AQ23. Using a scale of 1 to 7, where 1 means 'not at all confident' and 7 means 'extremely confident', how confident would you say you are in being able to choose your electricity (or gas) retailer? *(NA = 8, DK = 9)*

AQ24 And how about your confidence in being able to get enough information to make an informed choice? Please use the same scale *(IF NECESSARY 1 to 7, where 1 means 'not at all confident' and 7 means 'extremely confident')*

AQ25 How confident are you about the process of transferring from your current supplier to another supplier. Again please use a scale of 1 to 7 *(IF NECESSARY 1 to 7, where 1 means 'not at all confident' and 7 means 'extremely confident')*

								NA	DK
AQ23 Being able to choose your retailer	1	2	3	4	5	6	7	8	9
AQ24 Being able to get enough info	1	2	3	4	5	6	7	8	9
AQ25 Process of transferring to another supplier	1	2	3	4	5	6	7	8	9

Problems and Complaints

I just have a quick question to ask you about dealing with complaints and problems.

AQ26 If you had a reason to complain about your electricity or gas retailer, who would you go to? ***(DO NOT PROMPT) (SINGLE RESPONSE)***

Retailer / Supplier	1
Energy and Water Ombudsman NSW (EWON)	2
State government	3
MP	4
Lawyer	5
Other (specify) _____	6
Don't know	9

SECTION 2: CONCESSION CARD INFORMATION

BQ1. Do you hold any of the following concession cards? ***READ OUT (CLARIFY THAT THIS DOES NOT INCLUDE THE SENIORS CARD)***

Pensioner Concession Card	1	
Veterans' Affairs Gold Health Card	2	
Have a concession card but not sure what it is called	3	
No	4	**SKIP TO SECTION 3 (CQ1)**

BQ2. Are you aware that concessions are available to concession card holders for payment of (…) bills?

	Yes	No	DK
BQ2_1 Energy	1	2	9
BQ2_2 Water	1	2	9

NOTE TO INTERVIEWER: ENERGY CONCESSIONS APPEAR ON THE ELELCTRICITY ACCOUNT ONLY

IF YES TO ANY OF ABOVE, CONTINUE. OTHERWISE SKIP TO SECTION 3.

BQ3. Do you, or does anyone in your household, currently claim the concessions for your (…) bill?

	Yes	No	DK
BQ3_1 Energy	1	2	9
BQ3_2 Water	1	2	9

SECTION 3: HOT WATER SYSTEMS

CQ1 What is the main energy source used in your home for HOT WATER? ***(SINGLE RESPONSE ONLY)***

Electric	1	**CONTINUE**
Gas	2	**SKIP TO SECTION 4**
Solar	*	**ASK - IS IT ELECTRIC OR GAS BOOSTED?**
Solar only	3	**SKIP TO SECTION 4**
Solar - Electric boosted	4	**CONTINUE**
Solar - Gas boosted	5	**SKIP TO SECTION 4**
Wood, solid fuel	6	**SKIP TO SECTION 4**
Other (specify) _____	7	**SKIP TO SECTION 4**
Don't know	9	**SKIP TO SECTION 4**

IF ELECTRIC (1 or 4 in CQ1)
CQ2 Is that an off-peak system or a standard electric water heater?

Off-peak *	1
Standard electric	2
Don't know	9

**Interviewer note: If necessary, define 'off-peak' as "a water heater in which water is only heated at night." If their heater is off-peak, this will be indicated on their electricity bill.*

SECTION 4: HOUSEHOLD APPLIANCES

DQ1. What is (are) the main energy source(s) used in your home for COOKING? ***(MULTIPLE RESPONSES ACCEPTED)***

Electricity	1
Gas	2
Other (specify)_____	3
Don't know	9

DQ2 How often do you usually use these appliances in your home per week?

Times per week	<1	1-2	3-5	6+	NA	DK
DQ2_1 Clothes dryer	<1	1-2	3-5	6+	8	9
DQ2_2 Dishwasher	<1	1-2	3-5	6+	8	9
DQ2_3 Washing machine	<1	1-2	3-5	6+	8	9
DQ2_4 Microwave	<1	1-2	3-5	6+	8	9

DQ3 Do you have a second refrigerator?

Yes	1	**CONTINUE**
No	2	**SKIP TO SECTION 5**
Don't know / Can't recall	9	**SKIP TO SECTION 5**

DQ4 For how many weeks per year would your second refrigerator be turned on?

Number of weeks	
Don't know / Can't recall	99

SECTION 5: HEATING

EQ1 What kinds of room heating do you have? PROMPT *IF NECESSARY* ***(MULTIPLES ACCEPTED)***

IF MORE THAN ONE TYPE OF HEATING CONTINUE TO EQ2. OTHERWISE SKIP TO EQ3a

EQ2 Which kind of heating do you use most often? ***(SINGLE RESPONSE)***

	EQ1 Type of heating (Multiple)	**EQ2 Used most often (Single)**
Reverse cycle air-conditioning	1	1
Electric (not air-conditioning)	2	2
Gas	3	3
Oil	4	4
Wood, solid fuel	5	5
Kerosene	6	6
Ducted air (i.e. central heating in multi-dwelling unit)	7	7
Other (specify) _____	8	8
No heating	9	9
Don't know	10	10

EQ3 Apart from electric fans, do you have any air-conditioning or air cooling in this dwelling?

Yes	1	**SKIP TO EQ5a**
No	2	**CONTINUE**
Don't know / Can't recall	9	**CONTINUE**

EQ4 Are you considering installing an air-conditioner?

Yes	1	**SKIP to SECTION 6 (FQ1)**
No	2	**SKIP to SECTION 6 (FQ1)**
Don't know / Can't recall	9	**SKIP to SECTION 6 (FQ1)**

EQ5a How often, on average, do you use your air-conditioner in summer?

IF REVERSE CYCLE IN EQ1, CONTINUE. OTHERWISE SKIP TO EQ6.

EQ5b And in winter?

	EQ5a Summer	**EQ5b Winter (if reverse cycle)**
Less than 1 day per month	1	1
Less than 1 day per week	2	2
1-2 days per week	3	3
3-4 days per week	4	4
More than 4 days per week	5	5
Do not use	6	6
Not applicable	8	8
Don't know	9	9

EQ6 On summer days when you use your air-conditioner, how many hours do you usually switch it on for…?

EQ6_1 on summer weekdays?

EQ6_2 on summer weekends or holidays?

ASK EQ7 ONLY IF HAVE REVERSE CYCLE IN EQ1. OTHERWISE SKIP TO EQ8.

EQ7 On winter days when you use your reverse cycle air-conditioner for heating, how many hours do you usually switch it on for …?

EQ7_1 on winter weekdays?

EQ7_2 on winter weekends or holidays?

Hours per day	**EQ6_1 Summer weekdays**	**EQ6_2 Summer weekends / holidays**	**EQ7_1 Winter weekdays (if reverse cycle)**	**EQ7_2 Winter weekends / holidays (if reverse cycle)**
Less than 2 hours	1	1	1	1
2 to 5 hours	2	2	2	2
5 to 10 hours	3	3	3	3
10 to 20 hours	4	4	4	4
More than 20 hours	5	5	5	5
Do not use	6	6	6	6
Not applicable	8	8	8	8
Don’t know	9	9	9	9

EQ8 If you were charged 25% more for your electricity on very hot days, would you switch your air-conditioner off on those very hot days? ***(READ OUT) (SINGLE RESPONSE)***

Yes, for short periods	1
Yes, for most of the day	2
Yes, all day	3
No	4
Not applicable	8
Don't know	9

EQ9 Are you planning to upgrade your current air-conditioning system?

Yes	1
No	2
Don’t know / Can’t recall	9

SECTION 6: WATER USE

FQ1a How many single flush toilets do you have?

Single flush	
Don't know / Can't recall	9

FQ1b How many dual flush toilets do you have?

Dual flush	
Don't know / Can't recall	9

FQ2 How many indoor showers do you have?

Indoor showers	
Don't know / Can't recall	9

SHOWCARD FQ3

FQ3. Looking at this card, which of these items do you have? ***(ACCEPT MULTIPLES)***

Bath	1
Bath with spa jets	2
Spa	3
Swimming pool	4
Sauna	5
None of the above	6
Don't know	9

IF DO NOT HAVE GARDEN SKIP TO FQ5

FQ4. **HUNTER WATER AREA ONLY** Which of these methods do you usually use for watering your garden? ***(ACCEPT MULTIPLES)***

Hand held hose	1
Portable sprinkler	2
Automatic sprinkler system with timer	3
Automatic sprinkler system without timer	4
Other (specify) _____	5
Never water the garden	6
No garden	7
Don't know	9

FQ5 **HUNTER WATER AREA ONLY** Do you regularly use water for any other outdoor activities such as: ***(READ OUT)***

	YES	NO	DK
FQ5_1 Washing footpaths or driveway	1	2	9
FQ5_2 Washing the roof	1	2	9
FQ5_3 Washing a courtyard or a paved yard	1	2	9
FQ5_4 Washing the car	1	2	9
FQ5_5 Other (specify)	1	2	9
FQ5_6 None of these	1	2	9

FQ6 Do you use water from any of the following sources? ***(READ OUT)***

	Yes, outside only	Yes, outside and inside	No	Don't know
FQ6_1 Bore	1	2	3	9
FQ6_2 Grey water	1	2	3	9
FQ6_3 Rain water from tank	1	2	3	9

SHOWCARD FQ7

FQ7 Looking at this card, I'd like you to rate the importance of the following items in terms of your water services. Using a scale of 1 to 7, where 1 is 'very unimportant' and 7 is 'very important', how important is…?

								NA	DK
FQ7_1 Customer service	1	2	3	4	5	6	7	8	9
FQ7_2 Pressure of the water	1	2	3	4	5	6	7	8	9
FQ7_3 Flexibility of the billing arrangements	1	2	3	4	5	6	7	8	9
FQ7_4 Quality of the water	1	2	3	4	5	6	7	8	9
FQ7_5 Continuity of the water supply	1	2	3	4	5	6	7	8	9
FQ7_6 Incentives to reduce water use	1	2	3	4	5	6	7	8	9
FQ7_7 Good environmental management of water	1	2	3	4	5	6	7	8	9
FQ7_8 Overall cost	1	2	3	4	5	6	7	8	9

FQ8 From time to time the water supply system breaks down or the water supply needs to be shut down for more than two hours for maintenance. With additional resources, [Hunter Water / Gosford Council / Wyong Council] could reduce the frequency of these events. Let us say you face an average of one shut down per year at present. Would you be willing to pay 10% more for water if it meant that your supply would be shut down only once in every two years?

Yes	1
No	2
Don't know / Can't recall	9

SECTION 8: RESIDENCE INFORMATION

SHOWCARD HQ1

HQ1 Is this dwelling owned fully or being paid off by you or any of the usual residents of this household or are you renting or paying board?

IF RENTING, ASK: "Is that a Housing Commission rental or a private rental?"

Owned fully / fully paid off	1	**GO TO HQ3**
Buying / paying off home	2	**GO TO HQ3**
Renting – private	3	**CONTINUE**
Renting – public / Housing Commission	4	**CONTINUE**
Boarding	5	**GO TO HQ3**
Other	6	**GO TO HQ3**

HQ2 Do you pay for the quarterly water usage charges?

Yes	1
No	2
Not applicable	8
Don't know / Can't recall	9

HQ3 How many times have you moved house in the past three years?

Number of times	
Don't know / Can't recall	99

HQ4 How many bedrooms are in this dwelling?

Number of bedrooms*	
Don't know / Can't recall	9

**Interviewer note: Include rooms that can be used as either a bedroom or a study.*

SECTION 9: PAYMENT DIFFICULTIES

IQ1a Have you felt financially unable to pay your electricity, gas or water bills at any stage over the last three years?

	IQ1a_2 Electricity	IQ1a_1 Gas	IQ1a_3 Water
Yes	1	1	1
No	2	2	2
Refused	8	8	8
Don't know	9	9	9

IF YES TO ANY OF IQ1A, CONTINUE. OTHERWISE SKIP TO IQ4.

IQ1b Did this occur within the past year?

	IQ1b_2 Electricity	IQ1b_1 Gas	IQ1b_3 Water
Yes	1	1	1
No	2	2	2
Not applicable			
Refused	8	8	8
Don't know	9	9	9

IQ2 Have you approached your supplier because you have been financially unable to pay your bills in the past three years?

	IQ2_2 Electricity	IQ2_1 Gas	IQ2_3 Water
Yes	1	1	1
No	2	2	2
Refused	8	8	8
Don't know	9	9	9

IF YES TO ANY OF IQ2, CONTINUE. OTHERWISE SKIP TO IQ4

IQ3 What sort of help did the (…) supplier offer? ***(DO NOT READ OUT)***

	IQ3_2 Electricity	IQ3_1 Gas	IQ3_3 Water
Allowed to pay off in instalments	1	1	1
Extended the due date on the bill	2	2	2
Referred me to an emergency relief agency	3	3	3
Referred me to a financial counsellor	4	4	4
No help offered	5	5	5
Other (specify)	6	6	6
Not applicable	8	8	8
Don't know	9	9	9

IQ4 The NSW government funds a programme where community welfare organisations, such as St Vincent de Paul or the Salvation Army, distribute Energy Accounts Payment Assistance (EAPA) vouchers to help people in emergency or crisis situations pay their electricity or gas bills. In the past three years, have you received any EAPA vouchers to help pay your electricity or gas bills?

Yes	1
No	2
Refused	8
Don't know	9

IQ5 In the past three years, have you been in need of EAPA vouchers but have not used them because:

Hadn't heard of them	1
Didn't know where to get them	2
Felt uncomfortable about approaching a charity	3
Got money from elsewhere	4
Paid bill late instead	5
Did not qualify for EAPA	6
Did not receive vouchers in time	7
Not applicable	8
Refused	88
Don't know	99

IQ6 In the past three years, did you seek any other financial relief to help you cope with utility bills, for example, from community welfare organisations like St Vincent de Paul or the Salvation Army, or by taking out short-term loans?

Yes	1
No	2
Refused	8
Don't know	9

IQ7 In the past three years, have you had the electricity or gas disconnected, or the water restricted, for not paying your bill?

	IQ7_2 Electricity	**IQ7_1 Gas**	**IQ7_3 Water**
Yes	1	1	1
No	2	2	2
Refused	8	8	8
Don't know	9	9	9

SECTION 10: CLASSIFICATION DATA

JQ1 Sex (RECORD AUTOMATICALLY)

Male	1
Female	2

SHOWCARD JQ2

JQ2 Which one of the following age groups do you belong to?

18 to 24	1
25 to 34	2
35 to 44	3
45 to 54	4
55 to 64	5
over 65	6
Refused	88
Don't know	99

JQ3 What is the total number of people in this household including yourself?

Number of people	
Refused	88
Don't know / Can't recall	99

JQ4 How many are aged 15 and over?

Number of people aged 15 and over	
Refused	88
Don't know / Can't recall	99

JQ5 How many are aged less than 15 years?

Number of people aged less than 15	
Refused	88
Don't know / Can't recall	99

JQ6 How many would spend most days of the week at home?

Number of people*	
Refused	88
Don't know / Can't recall	99

**Interviewer note: Infants are to be included.*

SHOWCARD JQ7

JQ7 Which of these groups would best describe your household structure?

Showcard number	
Refused	88
Don't know / Can't recall	99

JQ8 Using this card, could you please give me the number which best describes the total income before taxes of this household last year?

Showcard number	
Refused	88
Don't know / Can't recall	99

Interviewer notes:

- *REMIND respondent: When calculating household income, please include income from all sources, including salaries, interest, dividends, bonuses, capital gains, profits, Centrelink payments and so on.*
- *If respondent refuses, say: "This information is important because the Tribunal needs to understand the impacts of price changes on the various customer groups, including pensioners and low-income households. One of the main purposes of this survey is to find out how much water, gas and electricity is used in different income groups."*

TELEPHONE

Just in case my supervisor needs to check or validate my work, could you please tell me your telephone number?

STD Write in number

Refused to give telephone number 1

Does not have a phone 2

RESPONDENT'S DETAILS

Mr / Mrs / Miss / Ms (First name & Family Name) ……

……..

Street number and name ……..……..

……..

Suburb……...

Postcode: ……

INTERVIEWER'S NAME

INTERVIEWER'S NUMBER

(PLEASE PRINT)

WHEN INTERVIEW CONDUCTED

Monday – Friday	1
Saturday – Sunday	2
AM	3
PM	4

_____ / _____ / 2008

(Date) (Month)

LOCATION OF INTERVIEW (SUBURB AND SUBURB NUMBER)

To be filled in by interviewer (refer to call sheet)_____ _____

INTERVIEWER DECLARATION

I certify this is a correct record of the interview which has been completed in accordance with my interviewing guidelines and conducted according to the ICC / ESOMAR International Code of Marketing and Social Research Practice.

Signed: _____

RECORD FINISH TIME NOW | ____:____ |

SHOWCARD AQ21/22

1	Very dissatisfied
2	
3	
4	
5	
6	
7	Very satisfied

SHOWCARD AQ23/24/25

1	Not at all confident
2	
3	
4	
5	
6	
7	Very confident

SHOWCARD FQ3

1	Bath
2	Bath with spa jets
3	Spa
4	Swimming pool
5	Sauna
6	None of the above

SHOWCARD FQ7

1	Very unimportant
2	
3	
4	
5	
6	
7	Very important

SHOWCARD HQ1

1	Owned fully / fully paid off
2	Buying / paying off home
3	Renting – private
4	Renting – public / Housing Commission
5	Boarding
6	Other

SHOWCARD JQ2

Age of respondent

1	18 to 24
2	25 to 34
3	35 to 44
4	45 to 54
5	55 to 64
6	over 65

SHOWCARD JQ7

1	Young single person	Person under 35 years of age living alone or sharing accommodation in a house or flat
2	Middle single person	Person between 35 and 59 years old living alone or sharing accommodation in a house or flat
3	Mature single person	Person over 59 years old living alone or sharing accommodation in a house or flat

4	Single parent – Young family	Single parent with mostly pre-school aged children
5	Single parent – Middle family	Single parent with most children aged from 6 to 15 years and still at home
6	Single parent – Mature family	Single parent with most children over 15 years and still living at home

7	Couple – Young family	Couple with mostly pre-school aged children
8	Couple – Middle family	Couple with most children aged from 6 to 15 years and still at home
9	Couple – Mature family	Couple with most children over 15 years and still living at home

10	Young couple, no children	Young couple with no children
12	Mature couple, no children	Family or couple in middle or mature age with no children or none at home
13	Other (Please specify)	

SHOWCARD JQ8

Note: When calculating household income, please include income from all sources, including salaries, interest, dividends, bonuses, capital gains, profits and so on.

	Total fortnight	Total Year
1	Less than $400	Less than $10,400
2	$400 to $800	$10,400 to $20,800
3	$801 to $1,200	$20,801 to $31,200
4	$1,201 to $1,600	$31,201 to $41,600
5	$1,601 to $2,000	$41,601 to $52,000
6	$2,001 to $3,000	$52,001 to $78,000
7	$3,001 to $4,000	$78,001 to $104,000
8	$4,001 to $6,000	$104,001 to $156,000
9	$6,001 to $8,000	$156,001 to $208,000
10	More than $8,000	More than $208,000

C Media release about the 2008 household survey

IPART'S 2008 SURVEY OF HOUSEHOLD ELECTRICITY, WATER AND GAS USE

The Independent Pricing and Regulatory Tribunal of New South Wales (IPART) has commissioned McLennan Magasanik Associates and McNair Ingenuity Research to conduct a survey of households in the Central Coast and Hunter Valley areas. The aim of the survey is to gather information on electricity, water and gas use, as well as information on the number of people who live in the household and their characteristics.

Interviewers from McNair Ingenuity will be in your area in March and April, and may approach your household to ask you to participate in this survey. The survey will take between 15 and 20 minutes to complete, and all information provided will be strictly confidential.

The results from this survey will be used by IPART to assess the effects on households of proposed price changes for electricity, water and gas. In order to do this, it is important to have a good understanding of customer characteristics and behaviour from the widest possible sample of households.

IPART CEO Jim Cox said: "All households are urged to take part in this survey, as the information will be used to define important patterns of household behaviour and energy and water use, allowing IPART to make fair and balanced decisions about prices."

For further information, contact Bee Thompson at IPART on 9290 8496 or McNair Ingenuity on 1800 669 133.

D Introductory letter to participating households

SURVEY OF WATER, ELECTRICITY AND GAS USAGE

The Independent Pricing and Regulatory Tribunal of NSW (IPART) has an ongoing responsibility for setting prices for electricity, gas and water in NSW. The Tribunal is concerned that its decisions should be reasonable, and requests your participation in a survey on electricity, gas and water usage.

The survey is being conducted to better understand the impact of price changes on households.

McLennan Magasanik Associates (MMA) and McNair Ingenuity Research are independent research companies that have been commissioned by the Tribunal to carry out the survey. McNair Ingenuity Research will be conducting interviews and MMA will be analysing the data.

Your household has been selected at random to participate in the survey. An interviewer from McNair Ingenuity Research will approach you in the next day or so to arrange an interview with the person in your household responsible for paying the bills. While your participation is voluntary, I hope that you will be able to assist us.

The survey is easy to answer, and should take less than 20 minutes.

You will be asked a number of questions about your household and your household's use of electricity, gas and water.

You will also be asked to give permission for MMA to use your electricity, gas and water billing data.

The responses you give for the survey will remain **strictly confidential**, and will not be disclosed to any other person or authority. Your name and your address will **not** be given to IPART. The survey responses you give, and your billing data, will be used for statistical purposes only.

If you would like more information about the survey you can contact Bee Thompson (9290 8496) or Brett Everett (9290 8423) at the Independent Pricing and Regulatory Tribunal or you can call Rachel Connor at MMA directly (ph 03 9674 4716).

Thank you for your assistance,

James Cox

Chief Executive Officer and Full Time Member

Access to your billing information

If you would like to receive a copy of the information that your electricity, gas or water utility discloses to *MMA*, you can call Rachel Connor on 03 9674 4716. To verify your identity, you will need to provide your name, billing address and account number.

You will find the telephone number and the name of the company (*MMA*) on the introductory letter of February 2008.

What happens to the information provided by your utility?

- *MMA* will send your consent form to your utility.
- Your utility will authorise *MMA* to use the billing information listed on the consent form
- *MMA* will combine this billing information with the information provided by you during the interview.
- *MMA* will permanently delete all names, addresses and account numbers from its records within three months of receiving the information from your utility.
- *MMA* will provide to IPART records that have had all names and addresses deleted. These unit records will be used for statistical purposes only and will not contain information that can identify you.
- *MMA* will collate the survey data using only the statistical information.
- IPART will produce a written report on the survey that will be available to the public on the Tribunal's website:

  http://www.ipart.nsw.gov.au/

- This report should be available by November 2008.

Similar research was conducted in the Sydney Metropolitan area in 2003 and 2006. You can access the results of the last research by going to http://www.ipart.nsw.gov.au/investigation_content.asp?industry=5&sector=current&inquiry=50&doctype=27&doccategory=1&docgroup=1 and http://www.ipart.nsw.gov.au/investigation_content.asp?industry=5&sector=current&inquiry=105&doctype=10&doccategory=1&docgroup=1

or call Rachel Connor at MMA on 03 9674 4716, who will explain how to locate the reports.

E Detailed survey results

Detailed results from the survey are available in Excel format on the IPART website at

http://www.ipart.nsw.gov.au/investigations.asp?industry=5&sector=current

then follow the link to

IPART 2008 Household Survey of Electricity, Water and Gas Usage in the Hunter, Gosford and Wyong

The following data tables are available:

Table 1 All households by electricity consumption

Table 2 Households using electricity only by electricity consumption

Table 3 Households using electricity and gas by electricity consumption

Table 4 Households using mains gas by gas consumption (4 categories)

Table 5 Households using mains gas by gas consumption (3 categories)

Table 6 All households by water consumption

Table 7 All households by income

Table 8 Households in the Hunter area by income

Table 9 Households in Gosford by income

Table 10 Households in Wyong by income

Glossary

Adults	Persons 15 years and over
Children	Persons aged less than 15 years
Freestanding house	Separate house not structurally attached to another dwelling
Full retail competition (FRC)	Full retail competition for electricity and gas, introduced in NSW on 1 January 2002. From that time, residential customers have had the option to choose their electricity and/or gas supplier(s).
Gigajoules (GJ)	Unit of gas measurement equal to 1,000 MJ (megajoules) or 10^9 joules
High consumption	For electricity, consumption above 12,000kWh per annum. For gas, consumption above 20 GJ per annum. For water, consumption above 300 kL per annum.
High income	Household income above $104,000 per annum
House	Separate house, combined dwelling/non-dwelling
Household	A small group of persons who share the same living accommodation, who pool some, or all, of their income and wealth, and who consume certain types of goods and services collectively, mainly housing and food (www.abs.gov.au).
Household income	Total income of the household (not respondent), before taxes, from all sources including income from salaries, interest, dividends, bonuses, capital gains, profits and so on
Indoor amenity	Facilities located inside the dwelling including toilets, showers, baths, spas, dishwashers and washing machines
Kilolitres (KL)	Unit of water measurement equal to 1,000 litres
Kilowatts (KWh)	Unit of electricity measurement equal to 1,000 watts
Large energy using appliances	Dishwasher, washing machine, clothes dryer, microwave oven, second refrigerator, swimming pool pump and air conditioner or heater. The survey did not ask about entertainment appliances (such as VCRs, DVD players, TVs and stereos).
Large land size	Land more than 900 square metres
Low consumption	For electricity, consumption below 4,000 kWh per annum. For gas, consumption below 10 GJ per annum. For water, consumption below 100 kL per annum.

Low income	Household income below $31,200 per annum
Low-middle income	Household income between $31,200 and $52,000
Medium land size	Land between 500 to 900 square metres
Megawatts (MWh)	Unit of electricity measurement equal to 1,000 kilowatts or 10^6 watts
Moderate consumption	For electricity, consumption between 4,000 kWh and 12,000 kWh per annum. For gas, consumption between 10 GJ and 20 GJ per annum. For water, consumption between 100 kL and 300 kL per annum.
Off-peak hot water system	Hot water systems which heat water outside the most popular and expensive times. Also know as a Controlled Load system (as the electricity supplier controls when water is heated).
Peak load	The amount of power required to supply customers at the busiest times. Also know as peak demand.
Renters	Customers paying rental for their primary place of residence
Residential customers	Customers in private dwellings, not including commercial and industrial customers
Single person	Person living alone or sharing accommodation in a house or flat
Small land size	Land less than 500 square metres
Unit	Granny flat, 'low rise' flats (less than 3 storeys), flats (3 storeys) and 'high rise' flats (more than 3 storeys)