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Brotherhood of St Laurence
Working for an Australia free of poverty

Australian National University | CENTRE FOR SOCIAL RESEARCH & METHODS

Energy Stressed in Australia

October 2018

About ACOSS

ACOSS is a national voice for the needs of people experiencing poverty, disadvantage and inequality and the peak body for the community services and welfare sector. Our vision is for a fair, inclusive and sustainable Australia where all individuals and communities can participate in and benefit from social and economic life.

ACOSS leads and supports initiatives within the community services and welfare sector and acts as an independent non-party political voice. By drawing on the direct experiences of people affected by poverty and inequality and the expertise of its diverse member base, ACOSS develops and promotes socially and economically responsible public policy and action by government, community and business.

About Brotherhood of St Laurence

The Brotherhood of St Laurence is an independent non-government organisation with strong community links that has been working to reduce poverty in Australia since the 1930s. Based in Melbourne, but with a national profile, the BSL continues to fight for an Australia free of poverty. We undertake research, service development and delivery, and advocacy with the objective of addressing unmet needs and translating the understandings gained into new policies, new programs and practices for implementation by government and others. The BSL's Energy, Equity and Climate Change program has been undertaking research, advocating for equitable policies and delivering programs to low income households since 2007.

The research for this report was provided by Associate Professor Ben Phillips, ANU, Centre for Social Research and Methods.

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ACOSS and the Brotherhood of St Laurence (BSL) take responsibility for final views and recommendations.

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CONTENTS

GLOSSARY OF KEY TERMS

ABS – Australian Bureau of Statistics

ACOSS – Australian Council of Social Service

Allowances (source of income) – Newstart, Parenting Payment Partnered, Austudy/Abstudy, Youth Allowance, Sickness Allowance

ANU – Australian National University

BSL – Brotherhood of St Laurence

Business (source of income) – self employed

COAG – Council of Australian Governments

HES – Household Expenditure Survey, conducted by Australian Bureau of Statistics (ABS)

Other gov (source of income) – Carer Allowance, Family Tax Benefit B (FTB), Other Pensions and Allowances, Utility Allowance, Pension Supplement, Overseas Allowances and Benefits

Other (source of income) – income received as a result of ownership of financial assets (interest, dividends), and of non-financial assets (rent, royalties) and other current receipts from sources such as superannuation, child support, workers' compensation and scholarships

Pensions (source of income) – Age Pension, Carer Payment, Disability Support Pension, Parenting Payment Single, Service/Department of Veteran Affairs pensions, Wife Pension

Percentile – on a scale of 100 that indicates the percent of a distribution

Quintile – any of five equal groups into which a population can be divided according to the distribution of values of a particular variable

W&S – wages and salaries

SUMMARY

Energy prices have risen significantly in recent years

The price of electricity in Australia has increased by 117%, or 76% in real terms, in the last decade. Meanwhile the price of gas increased by 89%, or 53% in real terms. These high prices are being felt across the economy, by industry, by farmers, by business, and by households.

Households living with low incomes or experiencing disadvantage, who are paying disproportionately more of their income on energy than the national average, are more likely to experience energy stress. Combined with the current housing affordability crisis, low wage inflation, long-term unemployment and only one job for every eight people looking for paid work, higher energy costs have had serious consequences for some households. Some have been tipped over the edge, and are going without heating and cooling, meals, and other basic essentials in order to afford their energy bills.

To inform the development of appropriate policy solutions, policymakers need to better understand who is most impacted by high electricity prices.

ACOSS and the Brotherhood of St Laurence (BSL) commissioned Associate Professor Ben Phillips, from the ANU Centre for Social Research and Methods, to analyse the cost of energy (electricity and gas) for a range of household types in Australia. The modelling is based on the Household Expenditure Survey (HES) undertaken by the ABS, and includes trends between 2008 and 2018.

High prices are hitting certain population groups hard

The report finds that some groups are paying disproportionately more of their income on energy bills, and this has risen since 2008, contributing to an increase in inequality and poverty. These groups include:

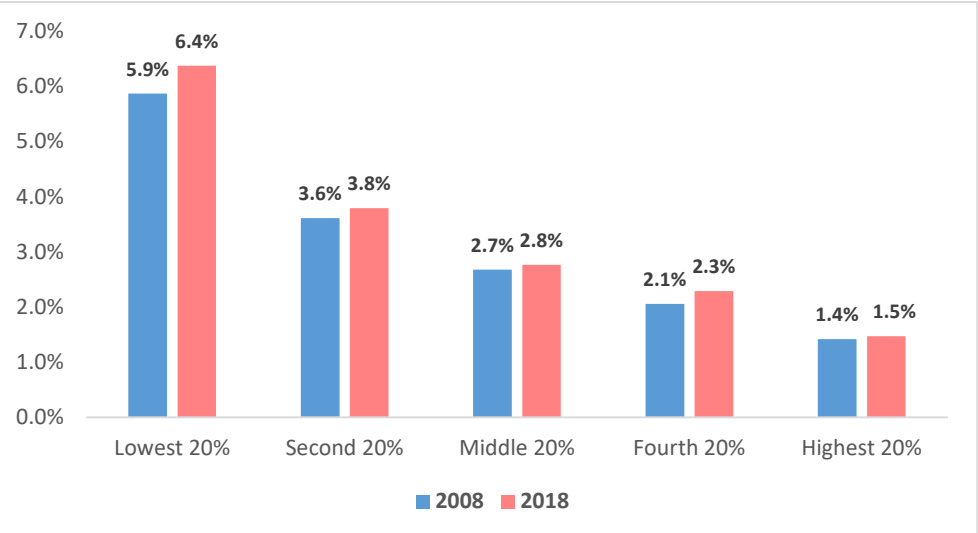
- People receiving Newstart and similar allowances, with a quarter spending more than 9.7% of their income on energy (electricity and gas); and
- People on low incomes (those in the lowest 20% of the income spread), with a quarter spending more than 8.8% of their income on energy.

Low-income households are hit hardest

On average, low-income households spend 6.4% of their income on energy, while high-income households (highest 20% of the income spread) spend far less relative to their incomes – an average of 1.5% (figure 1).

This is despite the fact that low-income households appear to use less energy, spending less in dollar terms per year. The main income source for roughly 65% of these households is social security like pensions, and for another 20% it is from wages and salaries.

Figure 1. Electricity and gas expenditure as a percentage share of income by disposable income quintiles



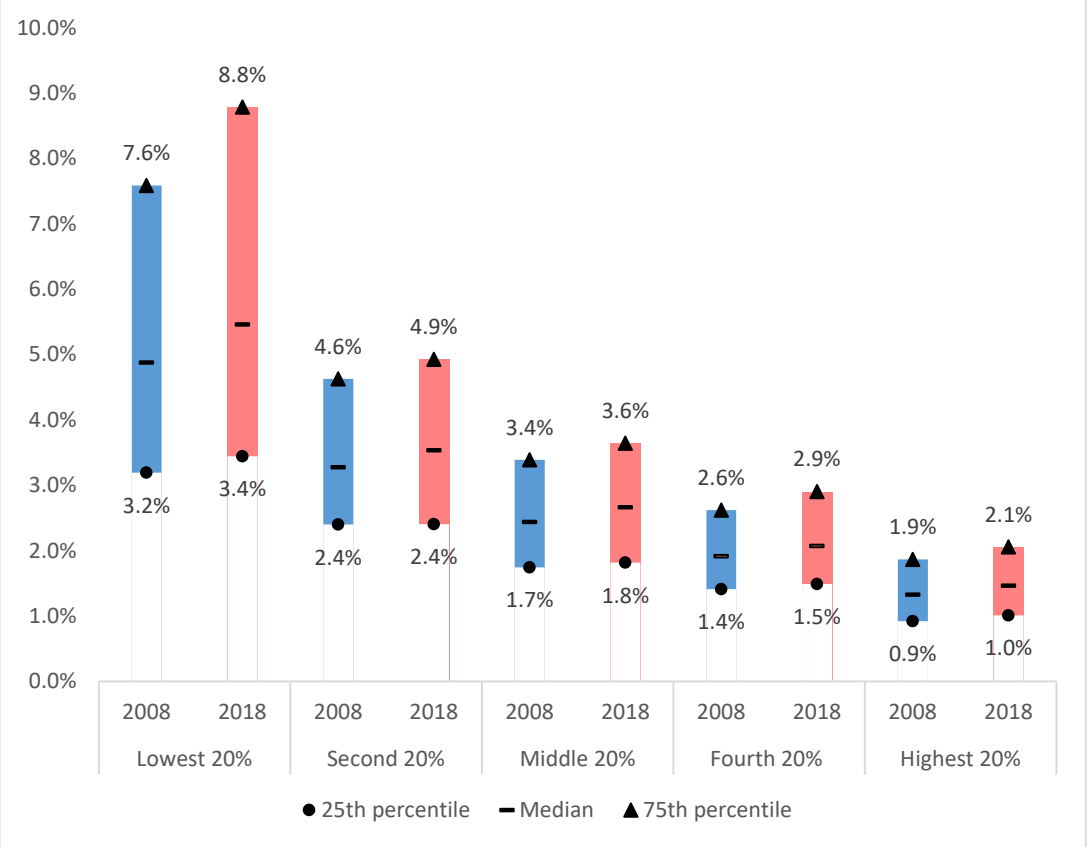
This graph shows energy expenditure as a share of income by each 20% of households, the lowest 20% of households by disposable income and the highest 20%.

Source: Phillips 2018

The situation for many low-income households has gone from bad to worse

Figure 2 shows there is considerable variation from the average in energy expenditure. Of the households with the lowest 20% of incomes, one in four (roughly 455,604 households) are now paying over 8.8% of their income on energy (electricity or gas). This is up from 7.6% in 2008.

Figure 2. Percentile distribution for electricity and gas expenditure as a percentage of income by disposable income quintiles



The graph shows the percentage of energy expenditure for the middle range of different income groups. Within each income quintile, the top of the column is the 75th percentile, the dash is the median, and the bottom of the graph is the 25th percentile. This graph shows that 25% of the lowest income quintile spend over 8.8% of their income on energy.

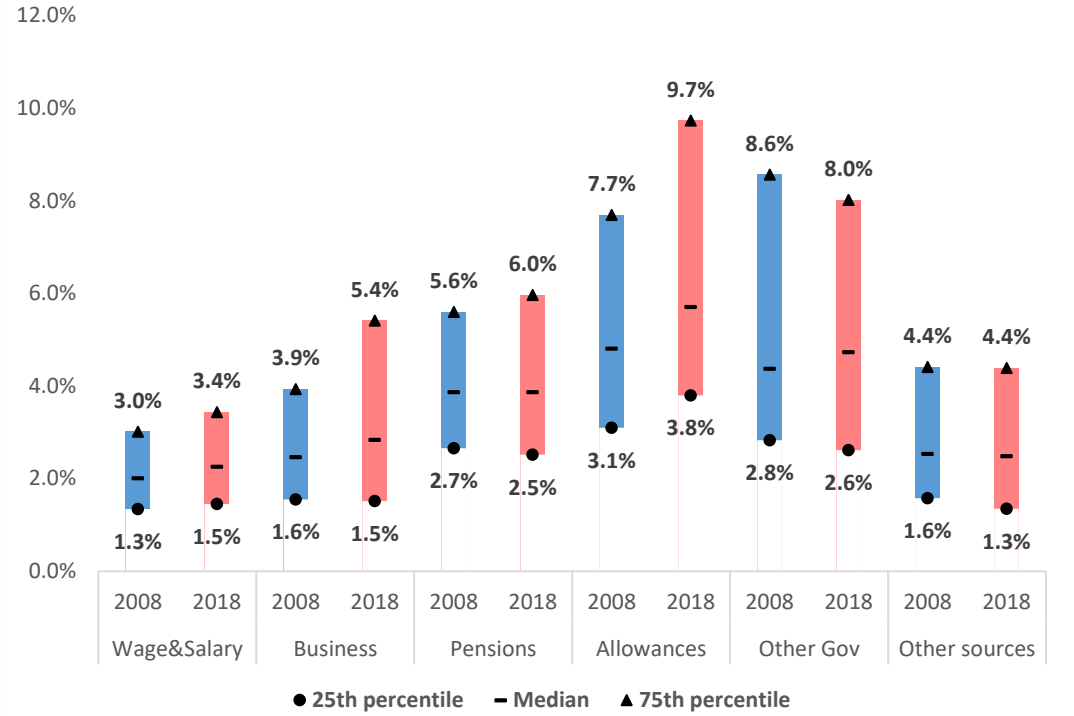
Source: Phillips 2018

Energy expenditure is reaching unprecedented levels in certain population groups

Those households dependent on income support payments such as Newstart and similar allowances are hit hardest by high prices, with one in four of these households spending more than 9.7% of their incomes on energy (figure 3). The plight of some Newstart recipients has deteriorated dramatically since 2008, when a quarter were spending over 7.7% of their incomes on energy.

Those households whose main source of income is either pensions (such as Age Pension, Disability Support Pension and Parenting Payment) or other government benefits (such as Carers Allowance and Family Tax Benefit B) are also spending more of their income on energy. With one in four households on pensions spending more than 6%, and one in four on 'other government benefits' spending more than 8%.

Figure 3: Percentile distribution for electricity and gas expenditure as a percentage of income by main disposable income



The graph shows the percentage of energy expenditure for the middle range of different income groups. Within each group, the top of the column is the 75th percentile, the dash is the middle, and the bottom of the graph is the 25th percentile. This graph shows over 25% of those on allowances spend over 9.7% of their income on energy.

Source: Phillips 2018

Low-income renters are particularly vulnerable

The research finds that 39% of households on the lowest 20% of incomes are renters, and 65% of households whose main income source is allowances like Newstart (see appendix 2) are renters. These households have less choice and less control in the reduction of their energy bills.

When we add housing costs to the analysis, it suggests some households are under immense financial stress.

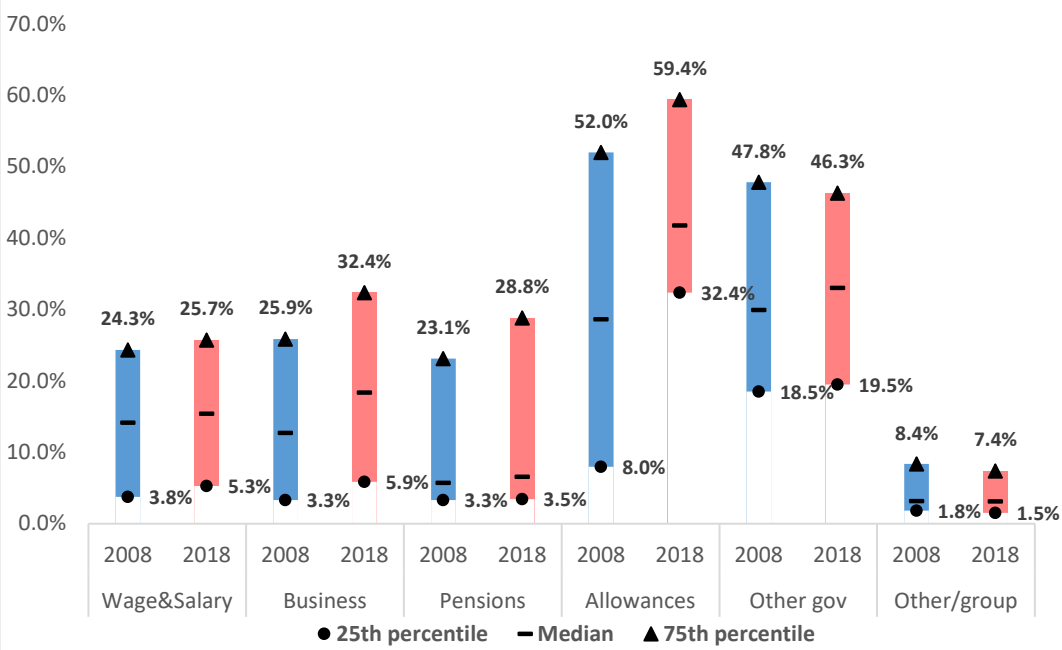
For example, households reliant on a government allowance like Newstart spend an alarming amount of their income on these basic costs of living, with one in four households spending more than 59% of their income on electricity, gas and housing. Similarly one in four households dependent on "other Government benefits" like Carers Allowance are spending more than 46.3% of their income on electricity, gas and housing. Those who are renters face a double whammy of high costs and the inability to introduce energy efficiency measures to reduce at least their energy costs.

Of great concern is the marked change from 2008 for households whose main income is a government allowance. In 2008 half of these households spent a minimum of 8% and up to 52% of their income on electricity, gas and housing combined; in 2018 half of these households were spending a much higher minimum of 32.4% and up to

59.4% (figure 4). A closer look at the data (see appendix 2) reveals that among households whose main source of income is government allowances, the proportion of renters and single parents has risen since 2008.

This suggests that households whose main income source is Newstart, Youth Allowance, Austudy/Abstudy, Carers allowance and other related social security payments are finding these payments inadequate to meet the costs of living.

Figure 4. Percentile distribution for electricity, gas and housing expenditure as a percentage of income by main source of income

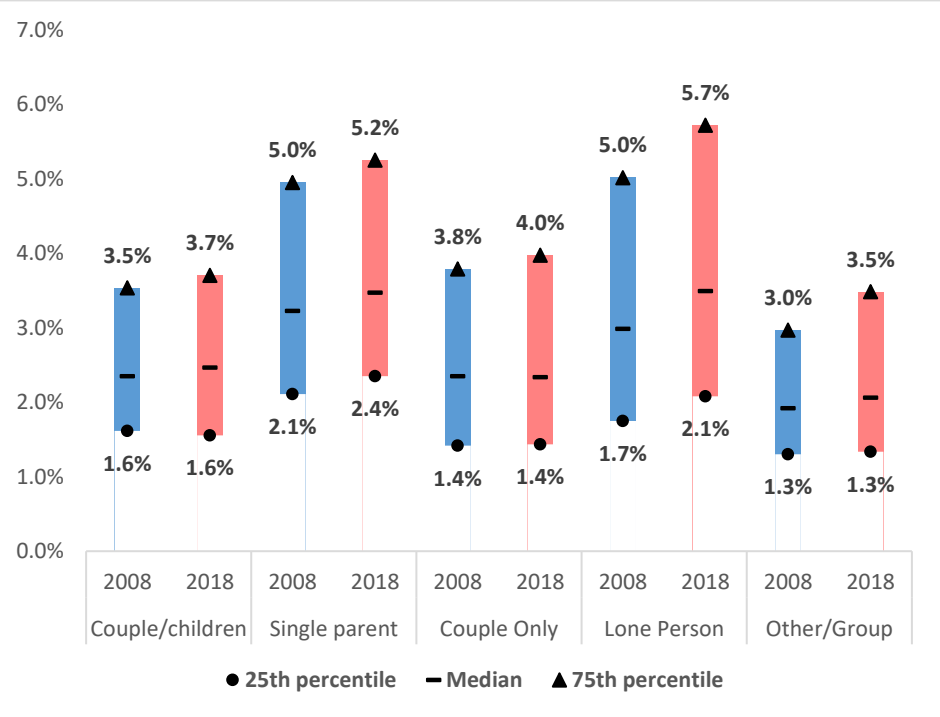


The graph shows the percentage of energy expenditure for the middle range of different income groups. The top of each column is the 75th percentile and the bottom of the graph is the 25th percentile.

Source: Phillips 2018

Single parent households also have high energy expenditure

Figure 5. Percentile distribution for electricity and gas expenditure as a percentage of income by household type



The graph shows the percentage of energy expenditure for the middle range of different income groups. The top of each column is the 75th percentile and the bottom of the graph is the 25th percentile.

Source: Phillips 2018

Single parent and lone person households (many of whom are reliant on pensions) spend more of their income on electricity and gas than many other household types. As shown in figure 5, one in four single parent households are paying more than 5.2% and lone person households paying more than 5.7%. Women make up the vast majority of single parents (82%)[1] and recipients of Parenting Payment Single (95%)[2].

Solar power lowers bills, but those with low wealth are locked out

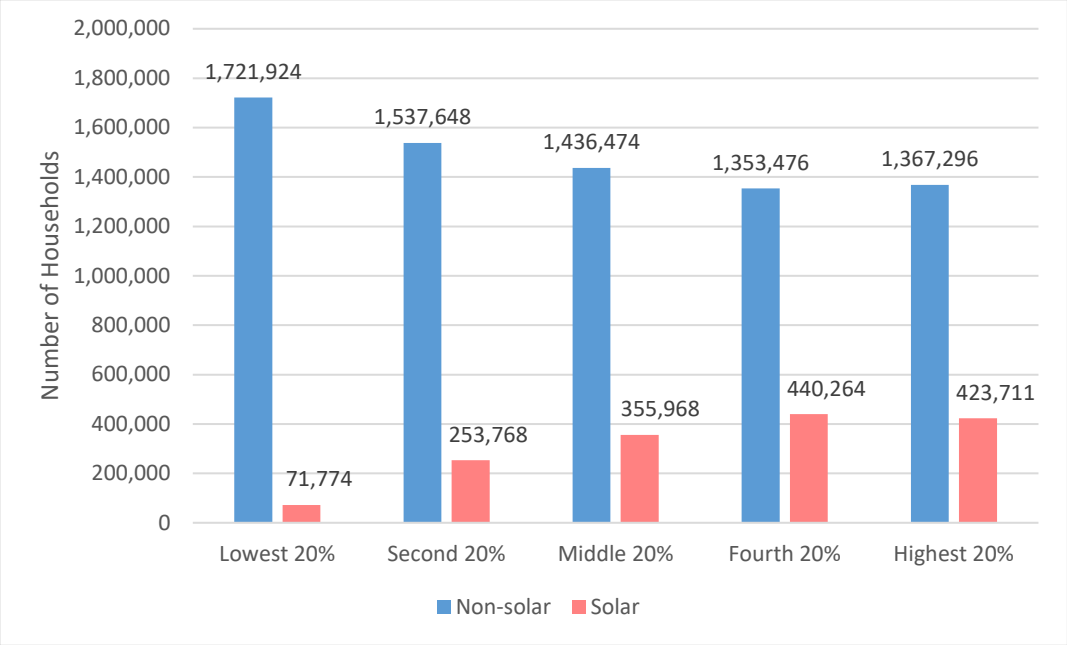
Not only are low-income households hardest hit by high energy prices, but they may miss out on the opportunity to take advantage of cleaner, more affordable energy sources such as solar power.

Around 17% of Australian households now have solar panels, reducing their energy bills by an average of $400 per annum. As the growth in rooftop solar continues, there is a risk that those who cannot afford or access solar will continue to pay more for their energy, contributing to energy inequality.

While ownership of solar panels is fairly consistent across income levels, it varies more greatly between wealth quintiles. This is in part because many older people have relatively low incomes but own their own homes. Renters are likely to be largely excluded from access.

Again, targeted policies will be needed to ensure that those who cannot afford or access rooftop solar are not left behind.

Figure 6. Solar panel households by wealth quintile



Source: Phillips 2018

[1] Australian Bureau of Statistics (ABS): Census 2016.
[2] Department of Social Security (2018): Administration data, March 2018.

ACOSS AND BROTHERHOOD OF ST LAURENCE RECOMMENDATIONS

While the analysis finds spending on energy has increased slightly for most households, some households are paying significantly more of their income on energy, and the gap has increased since 2008, contributing to growth in inequality and poverty. Policies need to focus not only on reducing energy prices, but also on reducing the size of household bills and improving people's capacity to pay. ACOSS and BSL make the following recommendations:

Reducing energy prices for all

ACOSS and BSL support, in principle, a range of measures to reduce prices across the supply chain, including but not limited to:

- An emission reduction mechanism to reduce wholesale prices;
- Further consideration of a fairer regulated retail price;
- Restricting conditional discounts, such as pay-on-time discounts, which do not reflect true costs;
- Remedying past overinvestment in networks, through write-down of regulated asset base in Queensland and Tasmania; and rebates on network charges in New South Wales;
- Providing a mechanism to offer demand response to the market;
- Shifting solar schemes away from electricity bills to government budget; and
- Giving greater powers to the Australian Energy Regulator to address poor retail practices.

Reducing energy stress for vulnerable households

Measures that can make an immediate and significant difference, include:

- Increasing Newstart and related allowances by at least $75 per week.
- Investing in energy efficiency measures, including mandatory energy efficiency standards for rental properties supported by tax incentives for landlords.
- Shifting to percentage-based energy concessions.
- Retaining the Energy Supplement for new recipients of income support.
- Introducing a grant scheme for consumer and community organisations to provide targeted support to vulnerable consumers.

Clean energy for all

Urgent attention needs to be given to ensuring that the growth of distributive energy (rooftop solar and batteries) is equitable and inclusive, providing affordable clean energy for all.

Measures should be aimed at supporting the access of vulnerable and low-income households to solar and batteries, and could include:

- Federal and state government investment in solar equity programs for public and community housing.
- Federal and State government investment in clean energy for remote Aboriginal and Torres Strait Islander communities.
- Federal, state, local councils and energy retailers working cooperatively to co-fund ongoing programs to provide access to solar photovoltaic technology for low-income and disadvantaged households.
- Programs for renters that benefit both landlord and tenants.

Pricing reform is also needed to ensure non-solar households are not paying more for network costs. We note there may be benefits from moving to cost-reflective, but there could be negative impacts for some households. Transitional government assistance would be critical.

Affordability benchmark

The COAG Energy Council should establish benchmarks by which energy affordability can be measured over time, including a clear definition of energy poverty as the level under which no person should fall in terms of being able to access energy supply. COAG should report on progress over time, including the number of people lifted out of energy poverty and the extent to which energy policy and market reforms deliver on a guarantee to energy affordability.

Research Note: Trends in Household Energy Expenditure[3]

Associate Professor Ben Phillips

ANU Centre for Social Research and Methods

September 25th 2018

[3] This research was commissioned by ACOSS and the Brotherhood of St Laurence, as part of a grant from Energy Consumers Australia

Contents

Introduction

Energy costs in Australia over the past decade have become a matter of great concern for households, policymakers and politicians alike. The price of electricity in Australia has increased substantially with the ABS estimating that between June 2008 and June 2018 electricity prices grew by 117 per cent or 76 per cent in real terms. Gas costs increased by 89 per cent or 53 per cent in real terms.

This paper considers the cost of energy (electricity and gas) for a range of household types in Australia, including trends between 2008 and 2018. We consider actual expenditure to take into account household energy use and any potential rebates households may receive, such as state government concessions or solar energy rebates.

Our modelling is based on the ABS HES. The analysis is based on trends between the 2003-04, 2009-10 and 2015-16 surveys, and adjusted to 2018.

The HES data enables consideration of the distribution of energy expenditure of different household types. Doing so helps to identify those groups who are more exposed to rising prices. The analysis includes segmentation based on income, wealth, household structure (couples with children, lone persons, sole parents etc.), main source of income (e.g. employment, pensions, allowances) and tenancy (renters, home-owners).

Methodology

The ABS conducts household expenditure surveys each 6 years. The surveys are very detailed providing a rich source of information for around 700 different expenditure categories. The expenditure information is based on dollars spent and does not allow analysis of the price paid or the volume of use.

Our trend analysis covers the last decade, from June 2008 to June 2018. Survey data is not available for these points in time so we interpolate the June 2008 estimate based on the 2003-04 and 2009-10 HES surveys. The 2018 estimate is based on trends extrapolated from the 2009-10 and 2015-16 HES files.

An alternative would be to use the closest available HES to each time point and inflate or deflate expenditure based on the ABS Consumer Price Index series, however, this method is likely to overstate the expenditure impact as households do respond to higher energy prices through less consumption. Households are using less energy on a per capita basis in recent years mainly as a result of more energy efficient appliances such as air-conditioning units and more efficient light bulbs. They may also respond to higher energy costs by deliberately using less energy. We don't attempt to model such changes here, rather we simply use the trends observed in the HES.

The trend analysis does line up reasonably well with household based ABS National Accounts data. This data we expect to provide a more accurate overall estimate of household energy use, however it does not split between electricity and gas and will not allow for any detailed distributional analysis beyond state level estimates. The National Accounts data also has a somewhat different scope that includes not-for-profit organisations and unincorporated businesses.

Analysis here focusses on the combination of electricity and household gas expenditure, however we have also undertaken similar modelling for each separately and included housing costs in combination with both electricity and gas.

Much of the analysis is focussed on the share of electricity and gas expenditure as a share of disposable income. This analysis is provided by detailed household types calculated from the ABS HES unit record data based on trends from the 2003-04, 2009-10 and 2015-16 files.

We consider a range of household types to help identify households where energy costs make up larger shares of disposable income. These are the households most likely to face financial difficulties from current energy prices and any future energy price pressures.

It is expected that lower income households would face more significant energy costs as a share of their disposable income. We consider households by income quintiles where we break households into five equal groups based on equivalised household disposable income. The lowest income group is 'quintile 1' and the highest income households, or top 20 percent, are 'quintile 5'. To adjust for household size and composition we 'equivalise' each household's income to a standard single adult household equivalent household income.

Some households with low incomes may have low incomes but have significant resources, or wealth. We also consider households by their wealth quintile to better understand energy costs by the resources available to households. Wealth in this research is 'net' wealth meaning we deduct any debts that a household may have from assets. Net wealth includes the value of the family home. A complexity of including the family home is that some households, particularly households headed by older persons, may have significant wealth locked away in the family home. For many households the value of the family home is unlikely to be used for consumption purposes.

Additional household types in this research include the dwelling structure, main source of income, tenure type and whether solar panels are used for generating electricity for the household. These are all household types that may, independent of other factors, require households to consume different amounts of energy.

To minimise differences in changes to income variables we have used the 2005-06 form of Disposable Income for the 2009-10 and 2015-16 HES files. More recent versions of this variable have considerable conceptual differences relative to 2003-04. Had it been possible to estimate consistently using the more recent income definitions the share of expenditure relative to income would be very modestly lower than those estimated in this paper. For the purpose of understanding the financial burden of different household types it is unlikely to alter the general pattern.

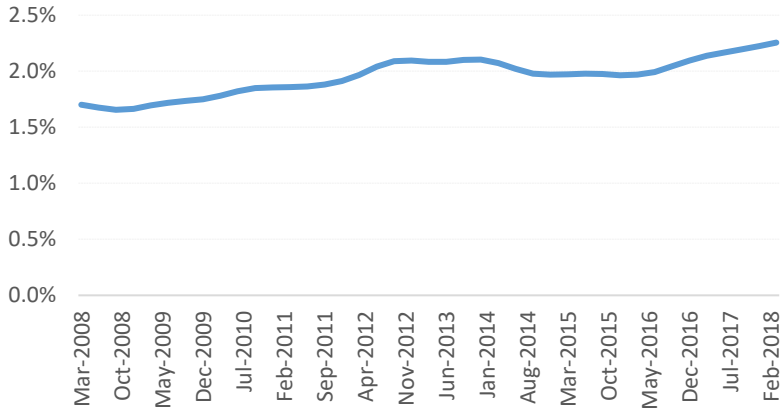
The research note uses disposable income. The income measure used is based on weekly income from the ABS HES. Weekly income for some households can be volatile and it is well accepted that some households do transition between income categories in different years. There is also the issue that some households may have low-income but relatively high wealth. We have estimated results for both income and wealth distributions. For the calculation of income quintiles we have excluded households with negative or zero incomes, however these households have been included in the overall expenditure share analysis.

Below is a summary of key findings with a full set of results in the appendix 1 and some additional information on household characteristics in appendix 2.

Results

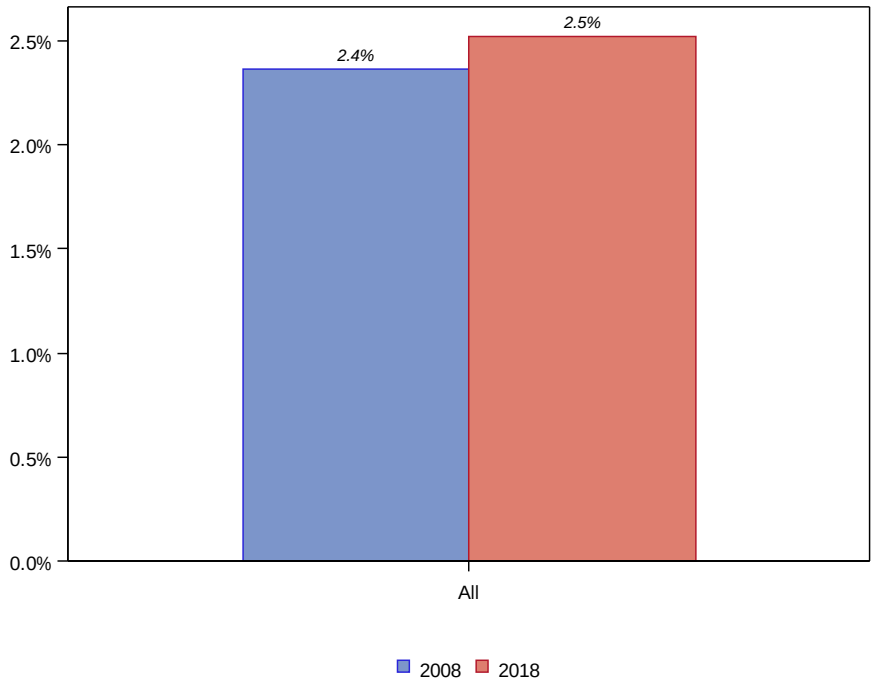
According to the ABS National Accounts for households, Figure 1 shows that the share of energy costs relative to disposable income has increased from about 1.7 per cent to 2.3 per cent between 2008 and 2018. This represents a 32 per cent increase in energy costs relative to income.

Figure 1 Household Electricity Expenditure Share of Disposable Income, ABS National Accounts



Due to differences in scope, some definitional differences and the fact that the HES is a sample of households the same result is not to be expected. Using trends in the HES data we find that the share of disposable income devoted to energy (electricity and gas) is a little higher but also the increase has been less substantial. We estimate an increased share in 2018 of 2.5 per cent compared to 2.4 per cent in 2008 (Figure 2).

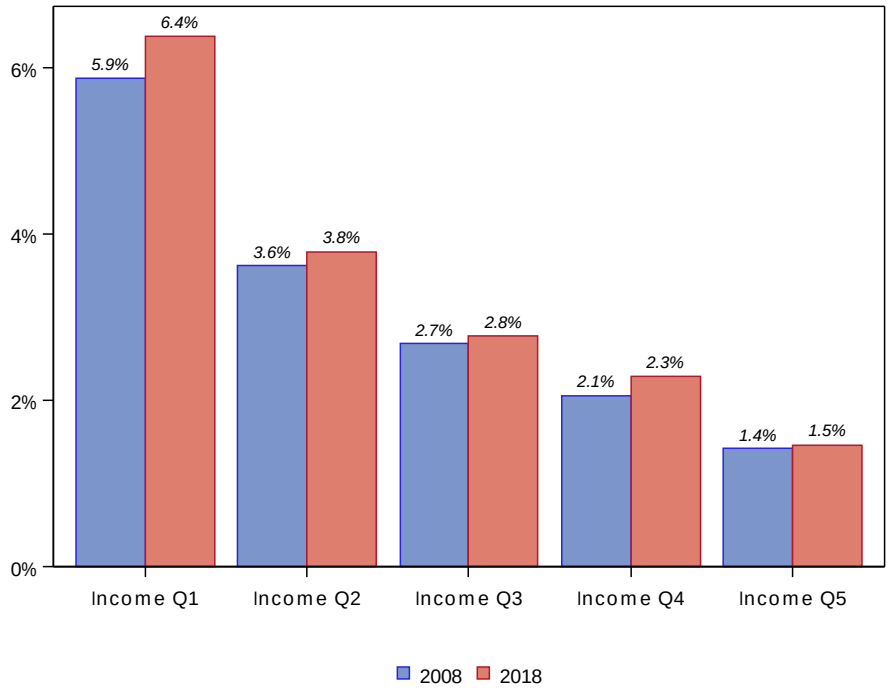
Figure 2 Electricity and Gas Expenditure Share of Disposable Income, All Households (HES)



The advantage of the HES is that we can estimate the distribution of energy costs relative to income for different household types. Figure 3 shows the average expenditure for households in each of the five income categories (from lowest income to highest income). Low-income families (Income Q1 – lowest 20 per cent of the disposable income distribution) devote a much higher share of income to energy costs at around 6.4 per cent in 2018, and show the largest increase up from 5.9 per cent in 2008. The highest income category (Income Q5) devotes just 1.5 per cent, up from 1.4 per cent in 2008[4].

[4] A full set of results is provided in Appendix 1.

Figure 3 Electricity and Gas Expenditure Share of Disposable Income, Income Quintile (HES)



In 2018, in raw dollar terms, low-income families spend $2,015 per year on average, compared to the highest income families at $2,649 per year. Middle income families spend $2,200 per year on average.

Figure 4 Electricity and Gas Expenditure Share of Disposable Income, Household Type (HES)

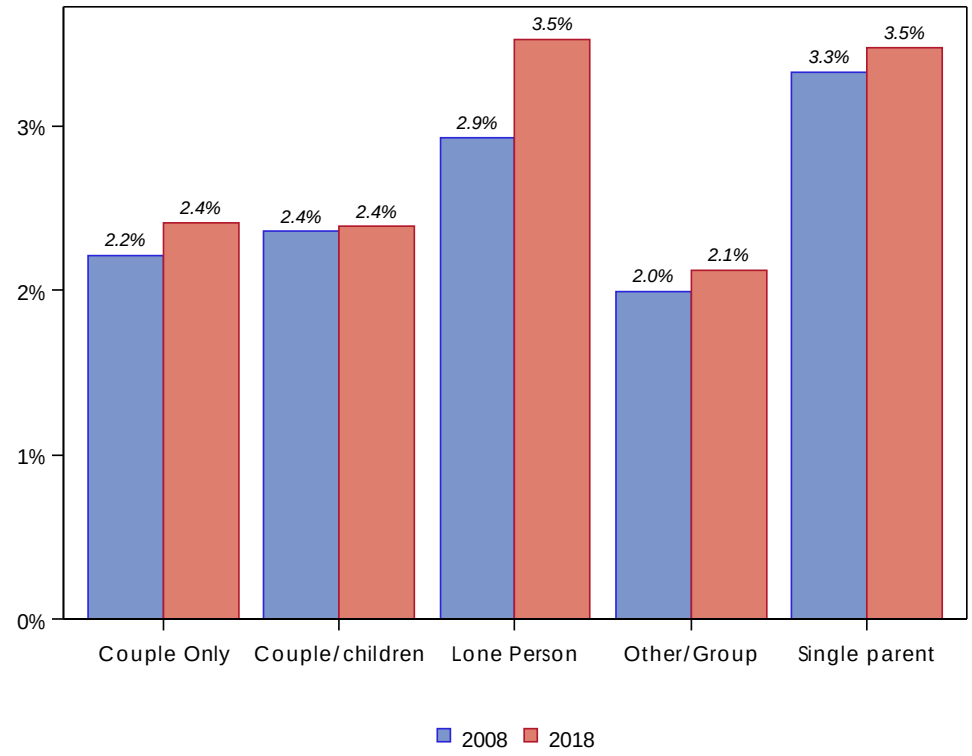


Figure 4 provides income shares by family type. The highest share of income devoted to energy costs are for lone persons and single parents (3.5 per cent). Couples with and without both spend around 2.4 per cent of income on energy costs. The largest increase was for lone persons up from 2.9 per cent in 2008. In raw dollar terms couples with children spend the most each year on energy at $2,912 and lone persons the

least at $1,494. Single parents spend the second most, more than couple only families at $2,426 but slightly less than other family types and group households at $2,549 per year.

Figure 5 shows that the region with the highest share of income devoted to energy costs is Adelaide (SA Capital City) at 3.4 per cent up from 2.7 per cent in 2008. This increase represents the largest increase in costs of any capital city or rest of state region. The lowest share of income was Sydney at 2 per cent. In raw dollar terms Adelaide also spends the most each year at $2,704 on average. The lowest average energy bill was in regional South Australia at $1,694. It is worth remembering that different states have different energy needs due to climatic differences. There are also differences in unit costs for energy. The HES files don't allow a breakdown of such components.

Figure 5 Electricity and Gas Expenditure Share of Disposable Income, Region (HES)

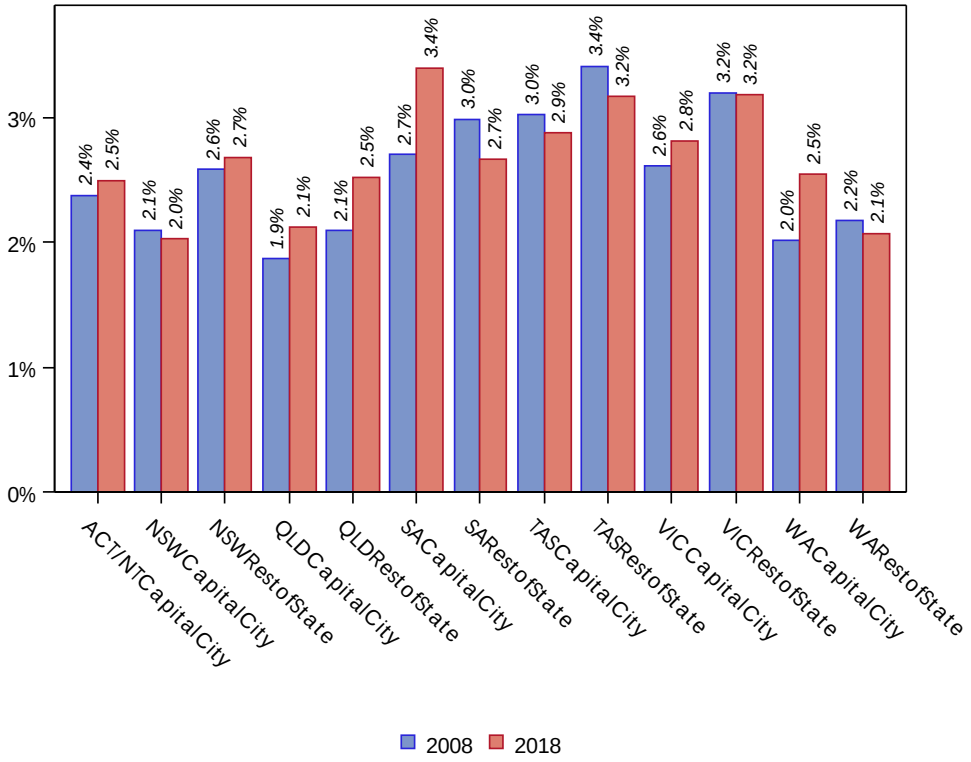
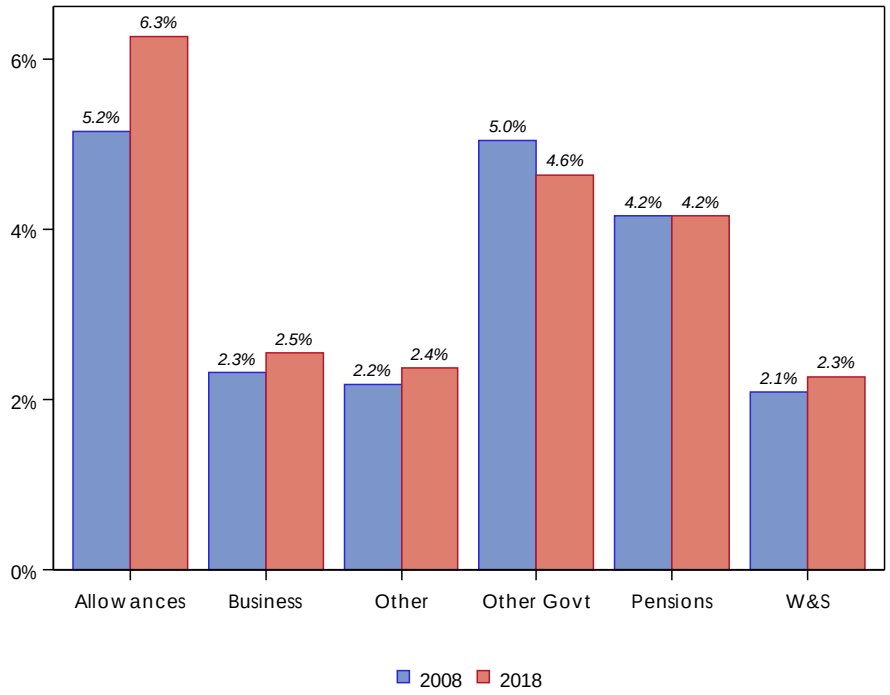


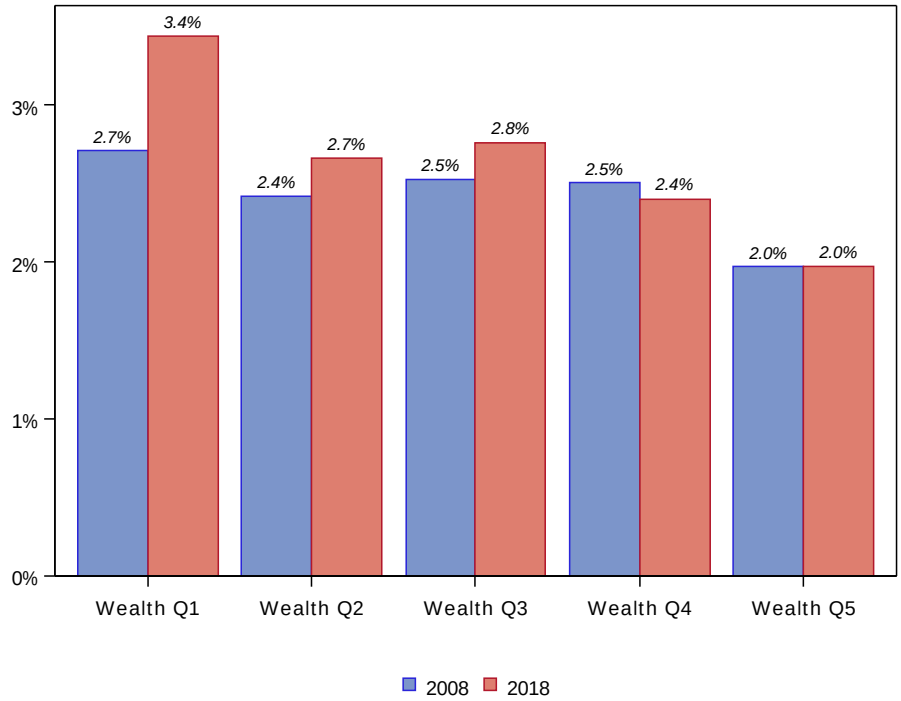
Figure 6 shows households whose main source of income are Government Allowances devote the largest share of income to energy costs at 6.3 per cent, up from 5.2 per cent tend years prior. Wage and Salary households devote the least at 2.3 per cent. Those on government pensions (typically Age, Disability, Carer, Single Parents) devote around 4.2 per cent of their income to energy costs. The main driver of cost share differences is income differences. Allowee (typically Newstart, Parenting Payment Partnered or Youth Allowance) households spend around $1,954 per year on energy costs whereas Wage and Salaried households spend $2,506. This differential is much less substantial than the nearly three times higher share of income devoted to energy costs for allowees relative to Wage and Salary households.

Figure 6 Electricity and Gas Expenditure Share of Disposable Income, Main Source of Income (HES)



A common issue with low-income households is that some are income poor but asset rich. This can particularly be the case for older households. Figure 7 considers energy costs as a share of income for the wealth distribution. When considered by wealth the variation in costs are not as stark as they are when compared with the income distribution. The lowest wealth quintile (bottom 20 per cent of net wealth) spends around 3.4 per cent of their disposable income on energy costs compared to 2 per cent for the highest quintile. The largest increase in costs were experienced by the lowest wealth quintile.

Figure 7 Electricity and Gas Expenditure Share of Disposable Income, Wealth Quintiles (HES)



The charts above show energy costs as a share of income as an average for each group. There can be considerable variation around these averages. Figure 8 shows the points of the 25th (bottom 25%) and 75th percentiles (top 25%) for energy costs for the income distribution. We estimate, for example, that the bottom income quintile households spend between 3.4 per cent and 8.8 per cent for the 25th percentile and 75th percentile respectively. The top income category ranges only between 1 and 2.1 per cent.

Figure 8 Percentile Distribution, Electricity and Gas Expenditure Share of Disposable Income, Income Quintiles (HES)

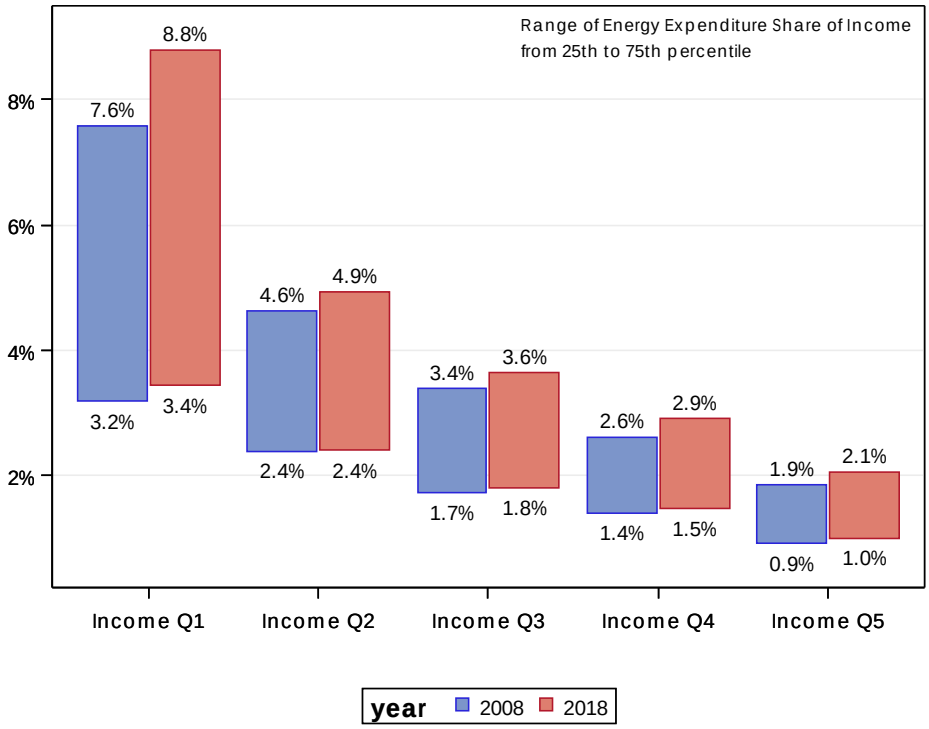


Figure 9 shows that allowee households show the greatest variation and the greatest share of income devoted to energy costs for the top 75th percentile. Twenty five per cent of these households are spending at least 9.7 per cent of their income on energy costs. This compares to wage and salary households who spend between 1.5 and 3.4 per cent. The allowee households have also experienced the largest increase in their expenditure share compared to 2008 shares. Pensioner households also have considerable variation in their energy shares, with 25 per cent of households having a share of less than 2.5 per cent but 25 per cent having at least 6 per cent of income devoted to energy costs.

Figure 9 Percentile Distribution, Electricity and Gas Expenditure Share of Disposable Income, Main Source of Income (HES)

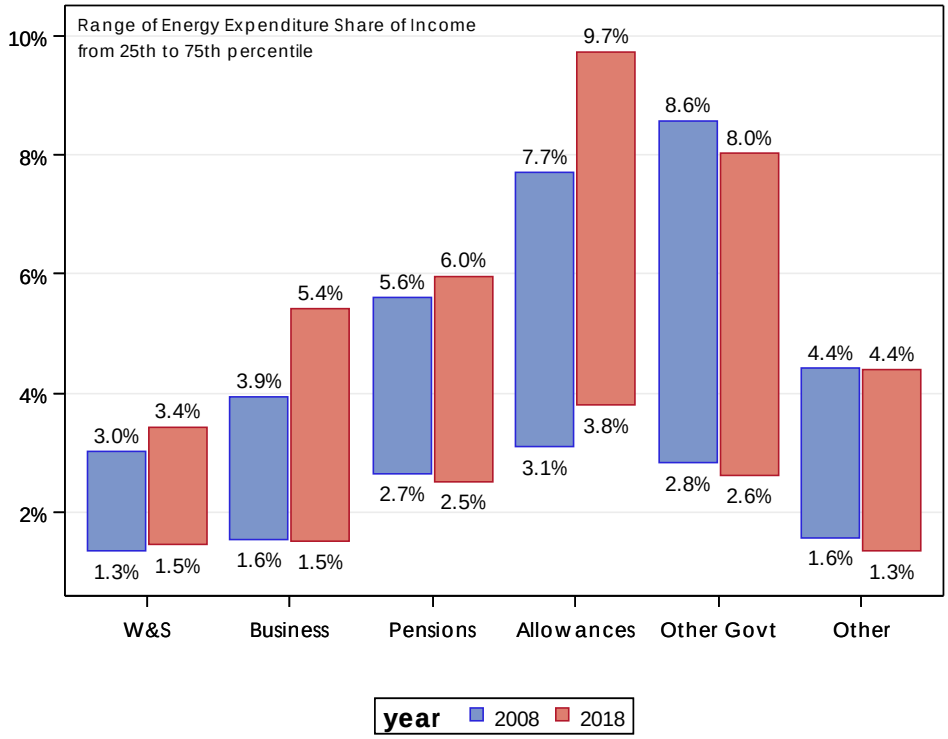


Figure 10 and Figure 11 add housing costs (rents and mortgage repayments for principal place of residence) to energy costs. Quite clearly low-income households spend a much larger share of their income on these basics costs of living (Figure 10). The lowest category of income spending, spend on average 28.5 per cent compared to the highest income category at 8.9 per cent. Quintile 2 cost share has increased the most since 2008.

Figure 10 Electricity, Gas and Housing Expenditure Share of Disposable Income, Income Quintiles (HES)

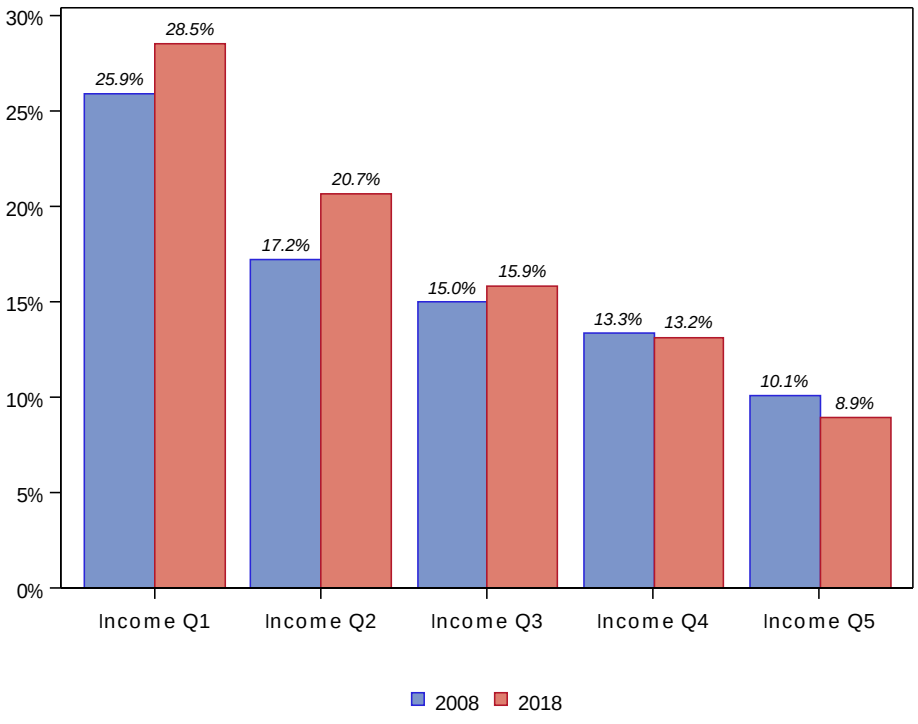
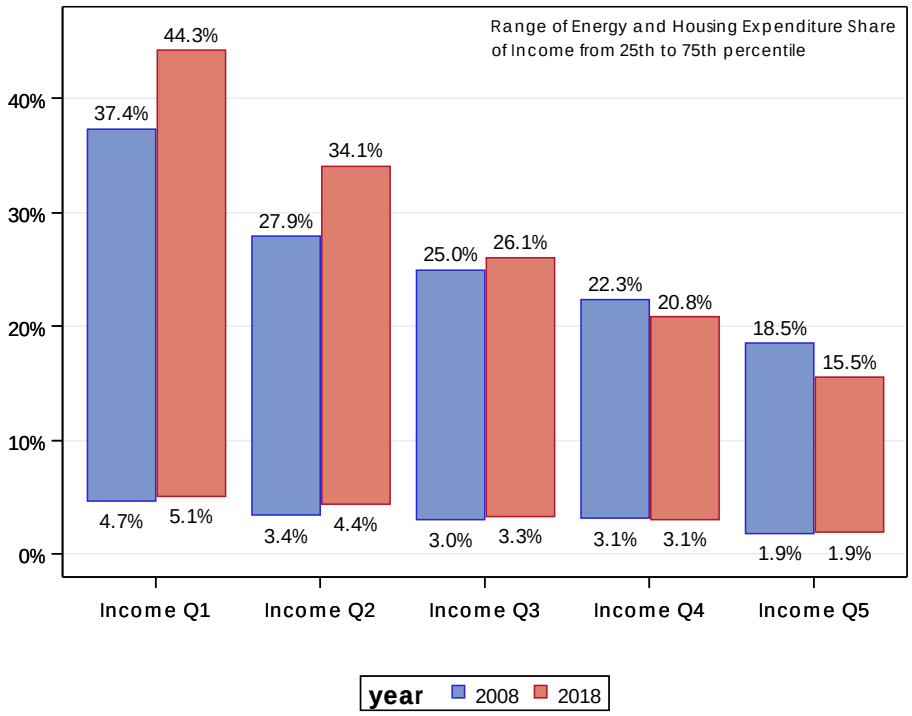


Figure 11 Percentile Distribution, Electricity and Gas and Housing Expenditure Share of Disposable Income, Income Quintiles (HES)



The percentile analysis when we include housing and energy costs reveals that 25 per cent of the lowest income quintile category of households spends at least 44.3 per cent compared to a 15.5 per cent share for the top income quintile (Figure 11).

Of allowee households, 25 per cent spend at least 59.4 per cent of their disposable income on energy and housing costs with 75 per cent spending at least 32.4 per cent (Figure 12).

Figure 12 Percentile Distribution, Electricity and Gas and Housing Expenditure Share of Disposable Income, Main Source of Income (HES)

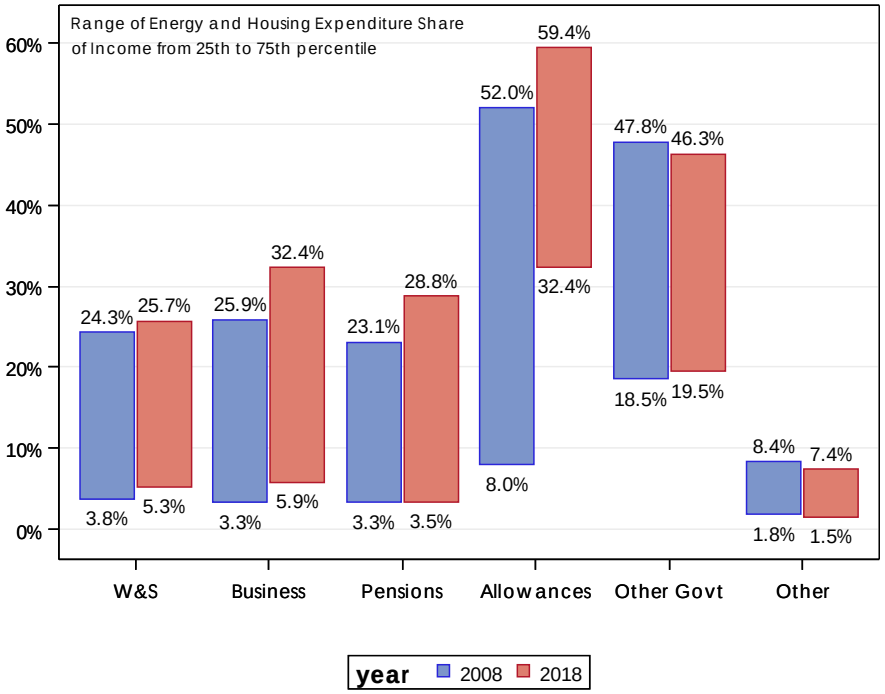


Figure 13 shows that renter households spend a much larger share of their disposable income on energy and housing costs with more than a quarter spending at least 41.5 per cent in 2018. This share is up from 35.7 per cent in 2008. With lower interest rates in 2018 compared to 2008 Mortgagor households are actually spending moderately less on energy and housing costs than they were in 2008.

Figure 13 Percentile Distribution, Electricity and Gas and Housing Expenditure Share of Disposable Income, Tenure Type (HES)

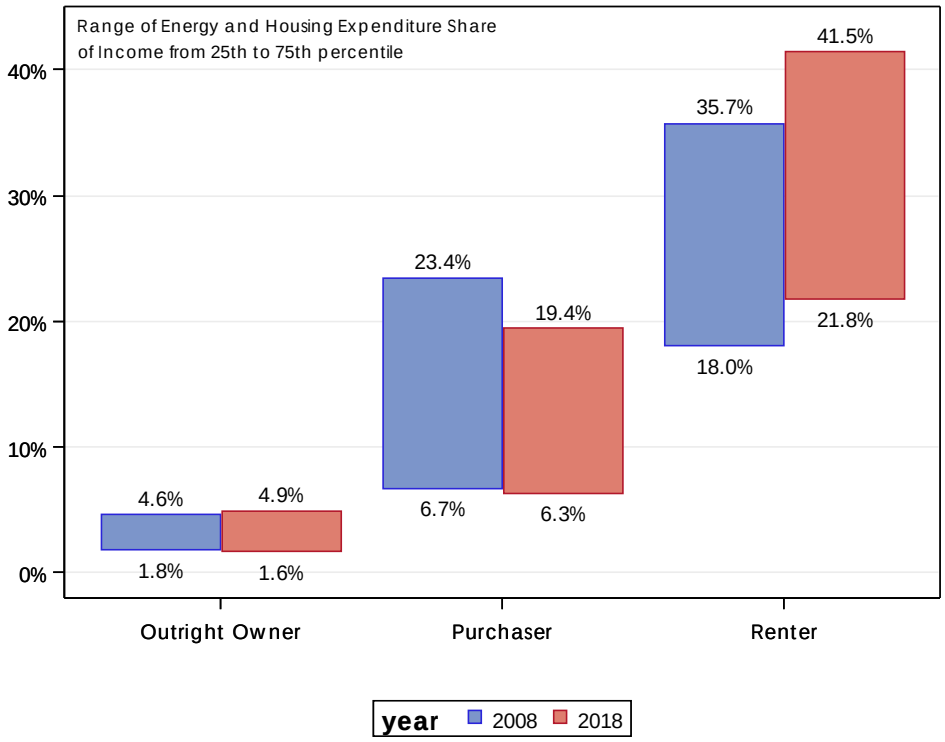


Figure 14 Energy and housing Expenditure Share of Disposable Income, Family Type (HES)

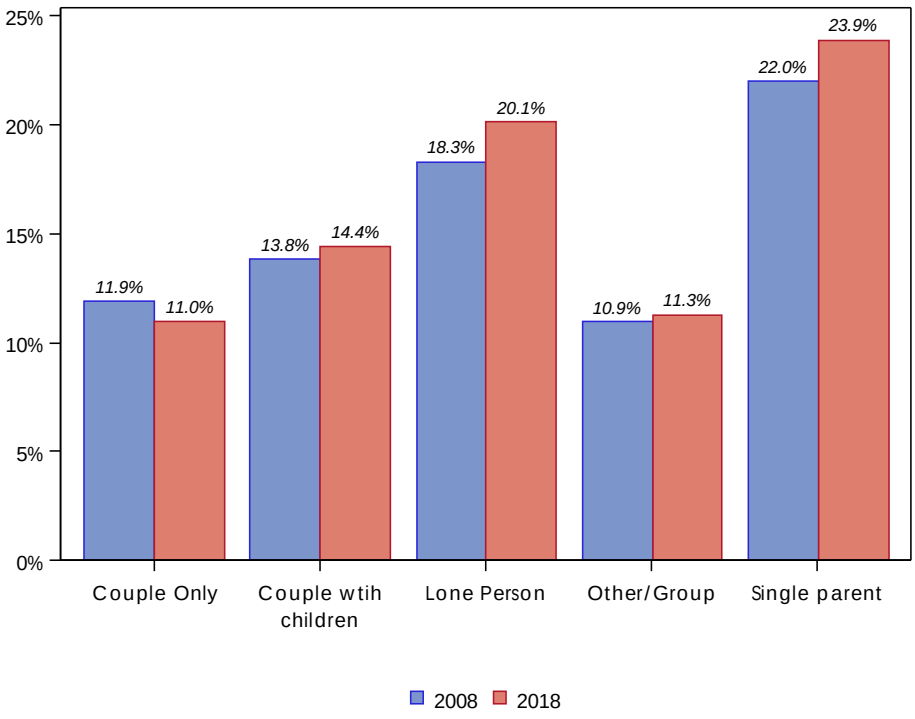
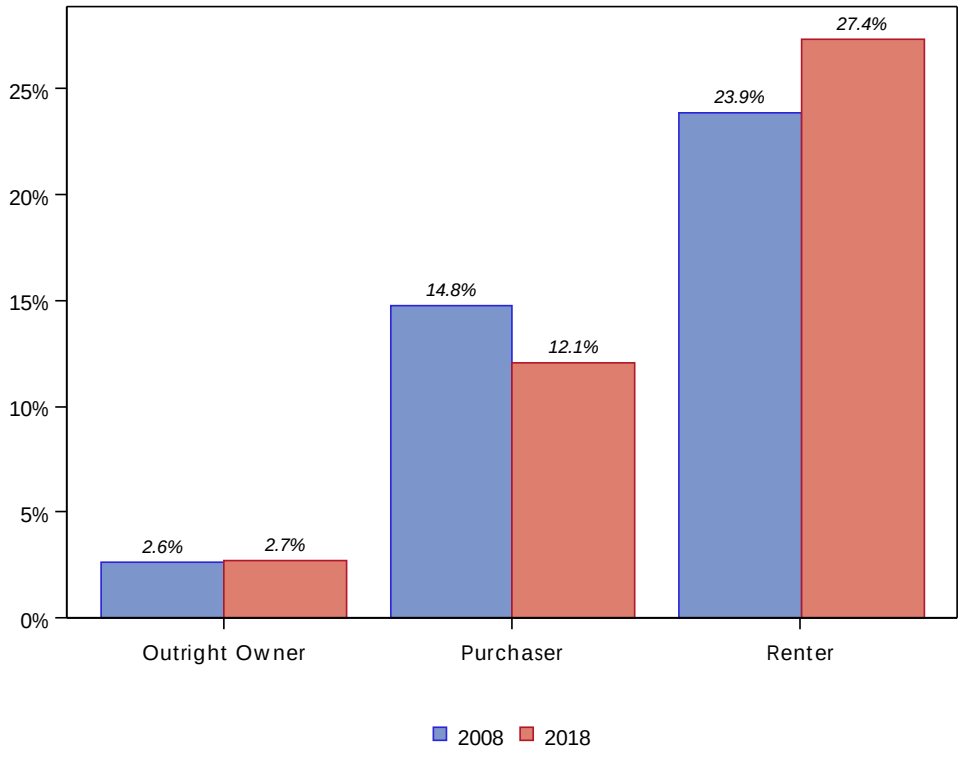


Figure 14 shows the distribution of energy and housing costs by family type. When we include housing costs we find that single parents have spent the largest share of income on these items at 23.9 per cent. This compares to just 11 per cent for couples – some of whom will be Age Pensioners with little or no housing costs as many own their house outright. Among single parents, 25 per cent spend at least 39.3 per cent of their disposable income on energy and housing costs while 25 per cent spend no more than 15.6 per cent.

Figure 15 shows that when we include housing costs renter households spend a much larger share of their income on energy and housing. Renter households spend, on average, 27.4 per cent of income compared to just 12.1 per cent for households with a mortgage (purchaser) and just 2.7 per cent for households who own their house outright. The top quartile (75th percentile) of renters spend at least 40 per cent of disposable income on housing and energy costs. The appendix also shows that renters spend a larger share of their disposable income on energy costs alone with an average share of 2.8 per cent compared to 2.5 per cent for all households.

Figure 15 Energy and Housing Expenditure Share of Disposable Income, Tenure Type (HES)



Around 1.55 million households had solar panels for the purpose of generating electricity for the house. Perhaps surprisingly, Figure 16 shows these households are relatively evenly distributed across the income distribution with similar numbers in the second quintile as the top quintile. . The bottom quartile had 255,000 households compared to 319,000 in the top quintile. Figure 18 shows that when considered by wealth quintiles the picture changes dramatically with 424,000 in the top wealth quintile and just 72,000 in the bottom wealth quintile. We find that households with solar panels spend around, on average, $400 a year less than households without solar panels – this result holds across the income distribution. The savings are larger when we include both electricity and gas expenditure (Figure 17) where savings increase to around $620 per year for the top income quintile and about $440 per year for the bottom income category.

Figure 16 Solar Panel Households by Income Quintile

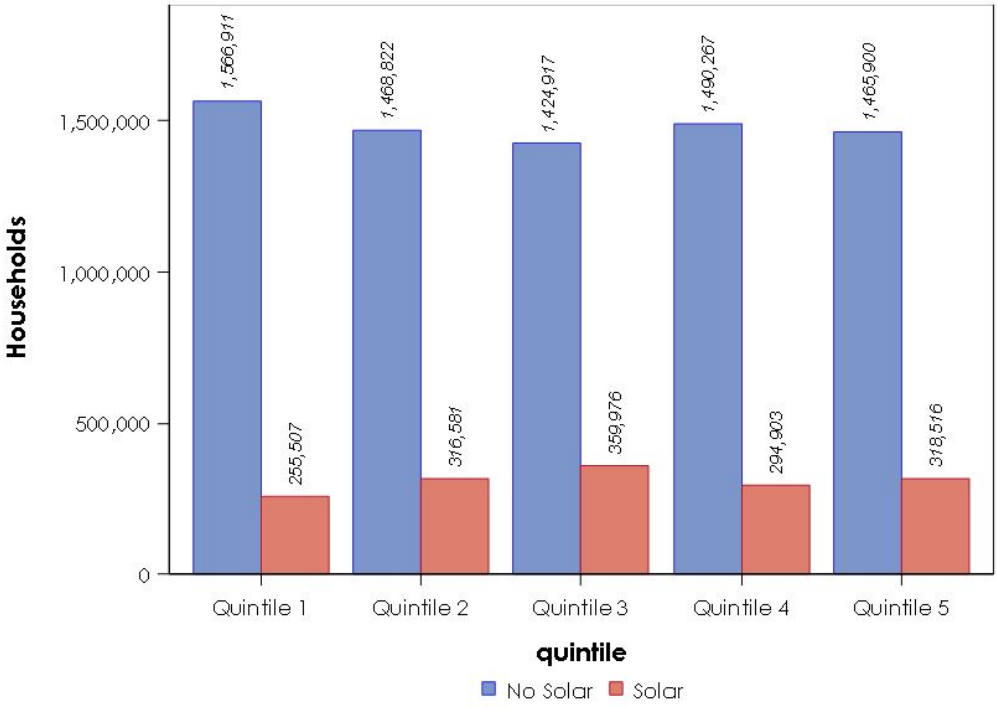


Figure 17 Energy Expenditure $pa by income quintile and Solar Panel Use

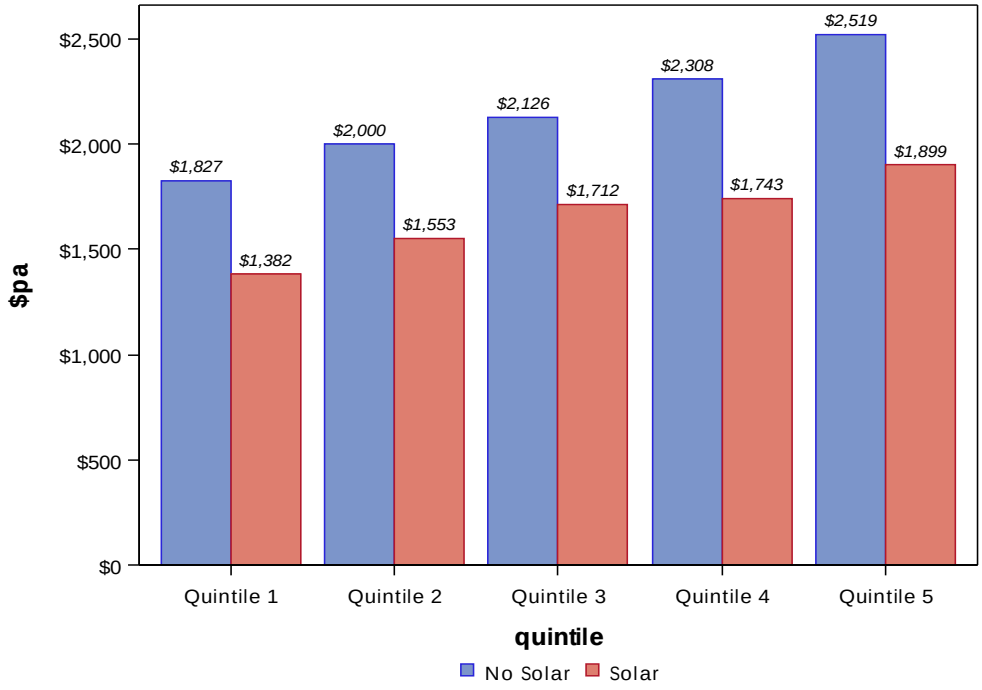


Figure 18 Solar Panel Households by Wealth Quintile

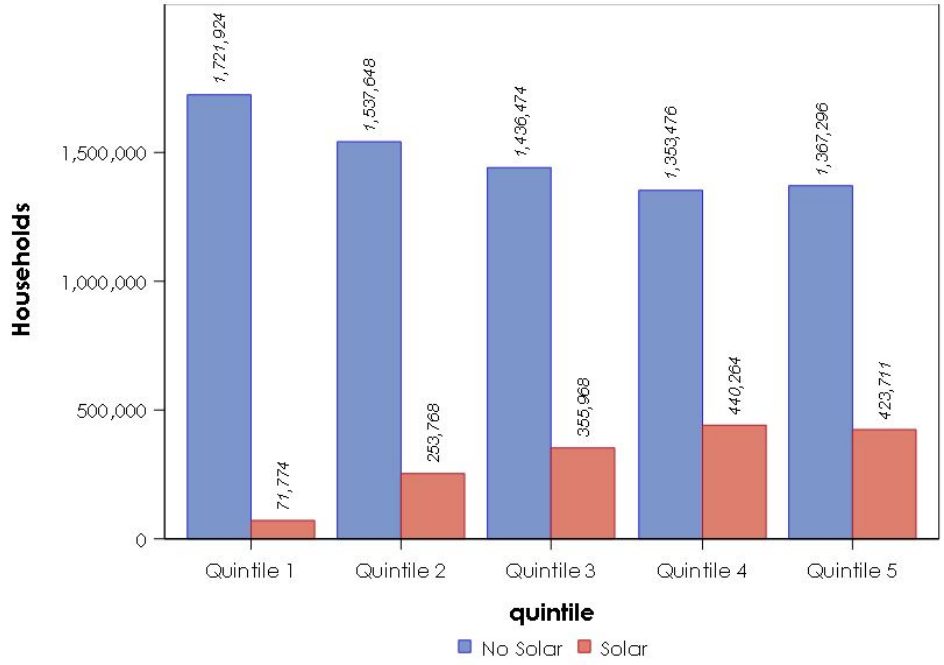
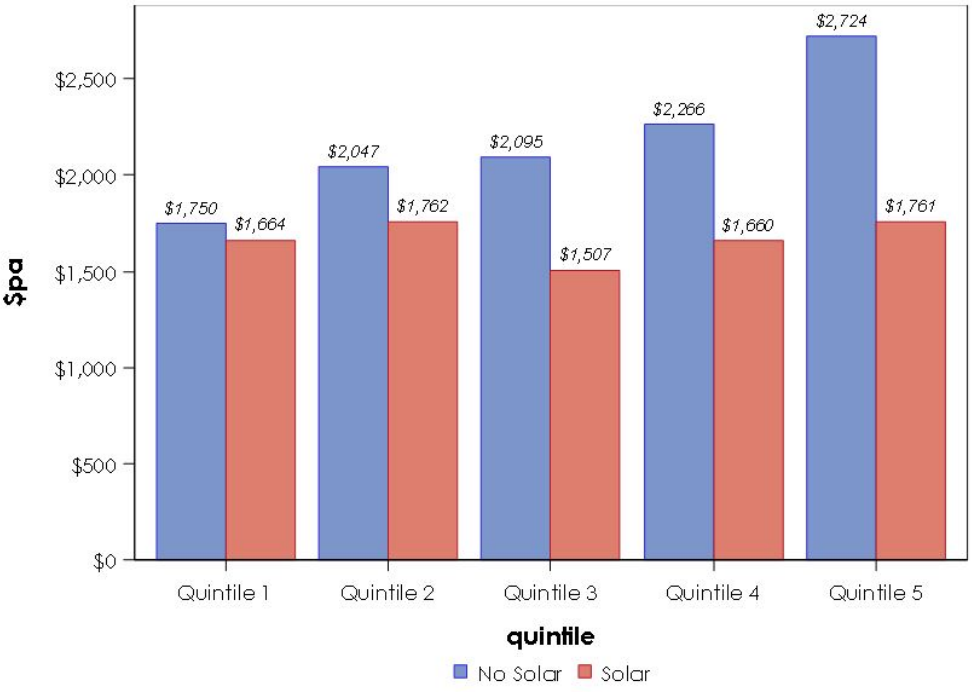


Figure 19 shows that energy expenditure is evenly distributed amongst the wealth quintiles for households without solar panels, however, for households without solar panels expenditure is significantly larger for higher wealth households.

Figure 19 Energy Expenditure $pa by wealth quintile and Solar Panel Use



Conclusion

This research note focuses on energy costs as a share of disposable income. While there is some disagreement on the extent of the increase the best available aggregate data – the ABS National Accounts – suggests a 32 per cent increase in the share of income devoted to energy costs – from 1.7 per cent to 2.3 per cent over the last 10 years to March 2018.

The HES data suggest that it is useful to show the distribution of energy costs as a share of disposable income for a wide range of household types. The survey also allows us to combine energy costs with another basic cost of living – housing costs. The survey also can tell us about not just the average costs for each group but also the distribution of costs for each group.

There are considerable average energy cost to income share differences between household types. We tend to find that lower income households have much higher energy costs relative to income. We also find that renter households, government beneficiaries (particularly allowances), and single parent families also tend to have much higher energy and combined energy and housing costs. Of course, many of these households are also low-income households.

Perhaps the most alarming numbers from this report are that there are a large share of households with very high energy and energy and housing costs. Considering the top 25 per cent of each group with respect to their share of income, allowee households often have energy costs exceeding 10 per cent of their disposable income. When we factor in housing costs the basics of electricity, gas and housing costs make up at least 59 per cent of their income.

Solar panels are on around 17 per cent of Australian households. From the perspective of the income distribution these households are reasonably evenly distributed, however, when we consider wealth we find most are middle and high wealth households. The energy savings are considerable with total energy savings usually exceeding $400 per annum for all groups on average.

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Australian Bureau of Statistics (2004), *Household Expenditure Survey 2003-04*, Commonwealth of Australia, Canberra.

Australian Bureau of Statistics (2017), *Australian National Accounts: National Income, Expenditure and Product* 5206.0*,* Commonwealth of Australia, Canberra.

Appendix 1 – Electricity and Gas Expenditure, Household Expenditure Survey, Full Data Set

	Energy Cost $pa		Energy Share of Income		P25	P75
Income Quintile	*2008*	*2018*	*2008*	*2018*	*2018*	*2018*
Quintile 1	$1,179	$2,015	5.9%	6.4%	3.4%	8.8%
Quintile 2	$1,435	$2,092	3.6%	3.8%	2.4%	4.9%
Quintile 3	$1,568	$2,200	2.7%	2.8%	1.8%	3.6%
Quintile 4	$1,620	$2,443	2.1%	2.3%	1.5%	2.9%
Quintile 5	$1,763	$2,649	1.4%	1.5%	1.0%	2.1%
All	$1,511	$2,278	2.4%	2.5%	1.6%	4.3%
Dwelling Type						
Separate House	$1,630	$2,413	2.4%	2.6%	1.7%	4.4%
Townhouse/Terrace	$1,194	$1,918	2.1%	2.3%	1.6%	4.1%
Unit	$948	$1,646	1.9%	2.2%	1.3%	3.8%
Family Type						
Couple with children	$2,058	$2,912	2.4%	2.4%	1.6%	3.7%
Single parent	$1,501	$2,426	3.3%	3.5%	2.4%	5.3%
Couple Only	$1,415	$2,147	2.2%	2.4%	1.4%	4.0%
Lone Person	$953	$1,494	2.9%	3.5%	2.1%	5.7%
Other/Group	$1,652	$2,549	2.0%	2.1%	1.3%	3.5%
Main Source of Income						
Wages and Salaries	$1,657	$2,506	2.1%	2.3%	1.5%	3.4%
Business	$1,728	$2,318	2.3%	2.5%	1.5%	5.4%
Pensions	$1,098	$1,703	4.2%	4.2%	2.5%	6.0%
Allowances	$1,111	$1,954	5.2%	6.3%	3.8%	9.7%
Other Govt Payments	$1,554	$2,570	5.0%	4.6%	2.6%	8.0%
Other	$1,446	$2,033	2.2%	2.4%	1.3%	4.4%
Region						
Sydney	$1,478	$2,232	2.1%	2.0%	1.4%	3.5%
Rest of NSW	$1,458	$2,101	2.6%	2.7%	1.6%	4.6%
Melbourne	$1,761	$2,613	2.6%	2.8%	1.8%	4.8%
Rest of Victoria	$1,651	$2,390	3.2%	3.2%	2.0%	5.8%
Brisbane	$1,244	$2,021	1.9%	2.1%	1.5%	3.5%
Rest of Queensland	$1,196	$1,962	2.1%	2.5%	1.7%	4.0%
Adelaide	$1,681	$2,704	2.7%	3.4%	2.1%	5.6%
Rest of South Australia	$1,555	$1,694	3.0%	2.7%	1.0%	4.7%
Perth	$1,422	$2,402	2.0%	2.6%	1.5%	4.2%
Rest of Western Australia	$1,449	$1,774	2.2%	2.1%	1.2%	3.5%
Hobart	$1,777	$2,327	3.0%	2.9%	1.9%	4.5%
Rest of Tasmania	$1,623	$1,998	3.4%	3.2%	2.0%	4.6%
ACT/NT	$1,917	$2,649	2.4%	2.5%	1.4%	4.1%
Tenure Type						
Outright Owner	$1,436	$1,976	2.6%	2.5%	1.6%	4.7%
Purchaser	$1,810	$2,630	2.2%	2.3%	1.5%	3.6%
Renter	$1,243	$2,164	2.3%	2.8%	1.8%	4.8%

Wealth						
Quintile 1	$1,147	$2,020	2.7%	3.4%	2.2%	5.5%
Quintile 2	$1,439	$2,218	2.4%	2.7%	1.6%	4.2%
Quintile 3	$1,489	$2,159	2.5%	2.8%	1.8%	4.5%
Quintile 4	$1,602	$2,296	2.5%	2.4%	1.5%	3.8%
Quintile 5	$1,880	$2,706	2.0%	2.0%	1.3%	3.6%

Appendix 2 – Additional Characteristic of Low-income households

Table 1 – Characteristics of Quintile 1 household (lowest 20% of incomes)

	Households Sum	% of Households
Tenure Type		
Outright owner	777,310	42.7%
Purchaser	334,469	18.4%
Renter	710,640	39.0%
Age of Head of Household		
35-49	386,477	21.2%
50-64	445,371	24.4%
65+	754,764	41.4%
<35	235,806	12.9%
Main Source of Income		
Neg/Zero	24,799	1.4%
W&S	353,997	19.4%
Business	77,461	4.3%
Pensions	908,277	49.8%
Allowances	154,790	8.5%
Other Govt Payments	114,516	6.3%
Other	188,577	10.3%
Wealth Quintile		
1	577,688	31.7%
2	307,728	16.9%
3	436,016	23.9%
4	289,259	15.9%
5	211,727	11.6%
Family Type		
Couple with children	317,207	17.4%
Single parent	155,033	8.5%
Couple only	457,993	25.1%
Lone person	759,641	41.7%
Other/Group	132,545	7.3%

Table 2 – Characteristics of Households whose main source of income is Government Allowances for 2015 and 2003

	2015 HES date		2003 HES data	
	Households Sum	**% of Households**	**Households Sum**	**% of Households**
Tenure Type				
Outright pwner	5,133	18.7%	62,835	27.0%
Purchaser	29,778	15.8%	38,699	16.6%
Renter	123,057	65.5%	131,208	56.4%
Age of Head of Household				
35-49	58,291	31.0%	75,771	32.6%
50-64	84,666	45.0%	92,582	39.8%
65+	1,708	0.9%	3,573	1.5%
<35	43,303	23.0%	60,816	26.1%
Income Quintile 1				
1	154,790	82.3%	184,557	79.3%
2	31,771	16.9%	42,914	18.4%
3	1,407	0.7%	5,271	2.3%
Wealth Quintile				
1	116,587	62.0%	115,041	49.4%
2	32,200	17.1%	51,606	22.2%
3	22,4443	11.9%	33,797	14.5%
4	10,829	5.8%	14,057	6.0%
5	5,909	3.1%	18,241	7.8%
Family Type				
Couple with children	17,772	9.5%	41,834	18.0%
Single parent	35,292	18.8%	3,940	1.7%
Couple only	29,988	16.0%	40,184	17.3%
Lone person	79,521	42.3%	119,674	51.4%
Other/Group	25,395	13.5%	27,110	11.6%