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markets



International comparison of Australia's household electricity prices

A report prepared for consumer network, One Big Switch.

July 2016

Executive Summary

This report has been prepared for the Big Energy Switch, a collective-switching campaign to be conducted by consumer network One Big Switch. We have been asked to compare electricity prices paid by households in South Australia, the Australian Capital Territory, New South Wales, Victoria, Western Australia, Queensland and Tasmania, to the prices paid by households in countries in Europe, Great Britain, Japan and the United States.

At market exchange rates and excluding sales taxes, the prices on standing and market offers in Australia are higher than average electricity prices in the comparator countries. The comparison is slightly more favourable to Australia if Purchasing Power Parity (PPP) rates of exchange are used. If sales taxes are included and PPP rates used, the prices paid in Australia range from the lower to upper quartile. This comparison uses the Australian Energy Market Commission's (AEMC's) estimates of representative offers in 2015/16.

Many households receive concession discounts - in Victoria approximately one in three households have access to such concessions. This reduces prices by 17.5% in Victoria, for example. Similar reductions are available to concession-eligible households in other states. In addition, households with dedicated circuit/controlled load tariffs in most cases pay lower average rates than will have been calculated based on the representative market offers.

On 1 July 2016 the biggest three retailers (and some but not all of the smaller retailers) operating in South Australia, New South Wales and Queensland increased their prices. After these increases, electricity prices in New South Wales for these offers (before taxes and at market exchange rates) will join those in South Australia and Victoria in being clearly higher than the average prices paid by households in other comparator OECD countries.

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1 Introduction

This report has been prepared for the Big Energy Switch, a collective-switching campaign to be conducted by consumer network One Big Switch. We have been asked to compare electricity prices paid by households located in South Australia, the Australian Capital Territory, New South Wales, Victoria, Western Australia, Queensland and Tasmania with prices paid by households in countries in Europe, Great Britain, Japan and the United States.

The next section explains the methodology. This is followed by the results and then a discussion of those results.

2 Methodology

There are three parts to the analysis in this report:

- The first compares household electricity prices in Australia with those in other countries. The unit of comparison is Australian cents per kilowatt-hour (kWh).
- The second part examines various classifications of all commonly available retail electricity offers from all licensed electricity retailers in New South Wales, Victoria and South Australia based on the information provided in the retailers' Electricity Price Fact Sheets valid up to 30 June 2016.
- The third part examines how the annual electricity bills of households on the cheapest offers of the three largest retailers will change after price increases that took effect on 1 July 2016.

2.1 International price comparison

The international comparison reflects prices in other countries converted to Australian Dollars at Purchasing Power Parity (PPP) rates of exchange and at market rates of exchange.

The advantage of using PPP exchange rates is that such comparison ostensibly reflects differences in the purchasing power of different currencies. Using PPP can result in more stable comparison than comparisons that use market rates which are more likely to fluctuate more significantly from one year to the next. A disadvantage of using PPP is that PPP has to be estimated. The estimate is often contentious. In international comparisons of electricity prices in Britain, for example, comparisons are performed at market exchanges rates.

The comparison in this report shows prices that are inclusive and exclusive of sales and excise taxes. Such taxes significantly affect prices in many countries. The advantage of using ex-tax prices is that it allows comparison of the prices actually paid to the electricity industry. The advantage of using a tax -inclusive price is that it shows the actual prices paid by customers.

In the calculations for this report non-Australian prices are converted into Australian dollars before and after tax and using PPP and market exchanges. The necessary data is sourced as follows:

1. The comparator countries are all members of the Organisation for Economic Cooperation and Development (OECD). The price data is obtained from the International Energy Agency's online (subscription) database (International Energy Agency, 2016). Prices for 2015 have been used except in the case of Germany, New Zealand, and Greece whose most recent data is for 2014 and so that data was used for these countries. A number of OECD member countries were excluded from the comparison on the basis of their GDP per capita and state of economic development being significantly different to Australia. The countries so excluded are Chile, the Czech Republic, Estonia, Hungary, Poland, the Slovak Republic, Slovenia and Turkey. OECD members Canada, Spain and

Korea were also excluded because their price data is not included in the IEA's database. The resulting dataset covers 22 countries.

2. Tax-inclusive and tax exclusive price data for 2015 is available from this database for all countries included in the analysis except the United States and Australia which only disclose tax exclusive prices. In the United States we assumed tax inclusive prices are the same as pre-tax prices. This is the case in most U.S. States. In Australia we calculated post-tax prices by grossing up pre-tax prices for GST at 10%.
3. All market and PPP exchange rate data were sourced from OECD.Stat, the OECD's online database (see (OECD.Stat, 2016)).
4. All Australian price information was obtained from the Australian Energy Market Commission's 2015 price trends report (see (Australian Energy Market Commission, 2015)). That report describes the "total annual bill" before GST for a "representative customer" on standing offers, and the percentage bill reduction available to consumers if they switched, where able, to "representative market offers".

2.2 Comparison of market offers in New South Wales, Victoria and South Australia

This comparison of the market offers is based on data and analysis using MarkIntell[Insight], a web-deployed retail market analytical tool that analyses all retail offers in retailers' Energy Price Fact Sheets. MarkIntell is a division of CME.

The MarkIntell database of retail offers is updated several times each month and the data used in this report is based on all retail offers to households in all Energy Price Fact Sheets published by all licensed retailers operating in Victoria (21 retailers), New South Wales (21 retailers) and South Australia (13 retailers). The pricing data for South East Queensland is not yet complete and so its results are not included in this analysis.

In New South Wales on 30 June 2016 there were 1,135 residential offers across three distribution zones. This includes around 867 that are “market” offers and the remaining are “standing” offers. In Victoria there were 1,628 offers across five distribution zones of which 1,058 are market and the remaining standing. In South Australia there were 137 offers of which 107 are market and the remaining standing.

In the application of the MarkIntell software for this report, the assumed annual consumption for households in New South Wales, Victoria and South Australia is based on the level used by the AEMC in its calculation of representative standing and market offers (5,936 kWh, 4,026 kWh and 5,000 kWh per year respectively).

In addition, in order to calculate the various offers for tariffs that have time-of-use or seasonal rate differentiation, it is necessary to make assumptions on load profiles. All relevant assumptions that have been used in the MarkIntell calculations are set out in Appendix A. In addition, the following is noted:

- In the calculation of market offers, it is assumed that all conditions in conditional discounts are met. This has a significant impact on prices in market offers since most discounts are conditional, and most but not all retailers offer significant (>20%) discounts against their standing offers, in their market offers. If the customers fail to meet the conditions in the conditional discount then the price in standing offers are a better estimate of the price they pay.
- The exceptionally inexpensive seasonal flat “Climate Saver” tariffs in Powercor’s distribution zone have not been included since these offers are no longer generally available.

3 Results

This section presents the results of the analysis in a series of charts.

3.1 International comparison

The international comparison is presented in four charts. The first two charts show prices exclusive of taxes. In the first chart, prices are converted into Australian cents per kWh at market exchange rates. In the second, prices are converted into Australian cents per kWh at PPP exchange rates. The next two charts in the international comparison are inclusive of taxes and at market exchange rates (the third chart) and PPP rates (the fourth chart). The Australian prices are shown in green and they cover the prices calculated using the AEMC's estimates of representative market and standing offers. The "Australia (IEA)" data point is the price that the IEA has recorded for Australia based on the information provided to the IEA by the relevant Australian authority.

Figure 1. Household electricity prices (cents per kWh) exclusive of taxes at market exchange rates.

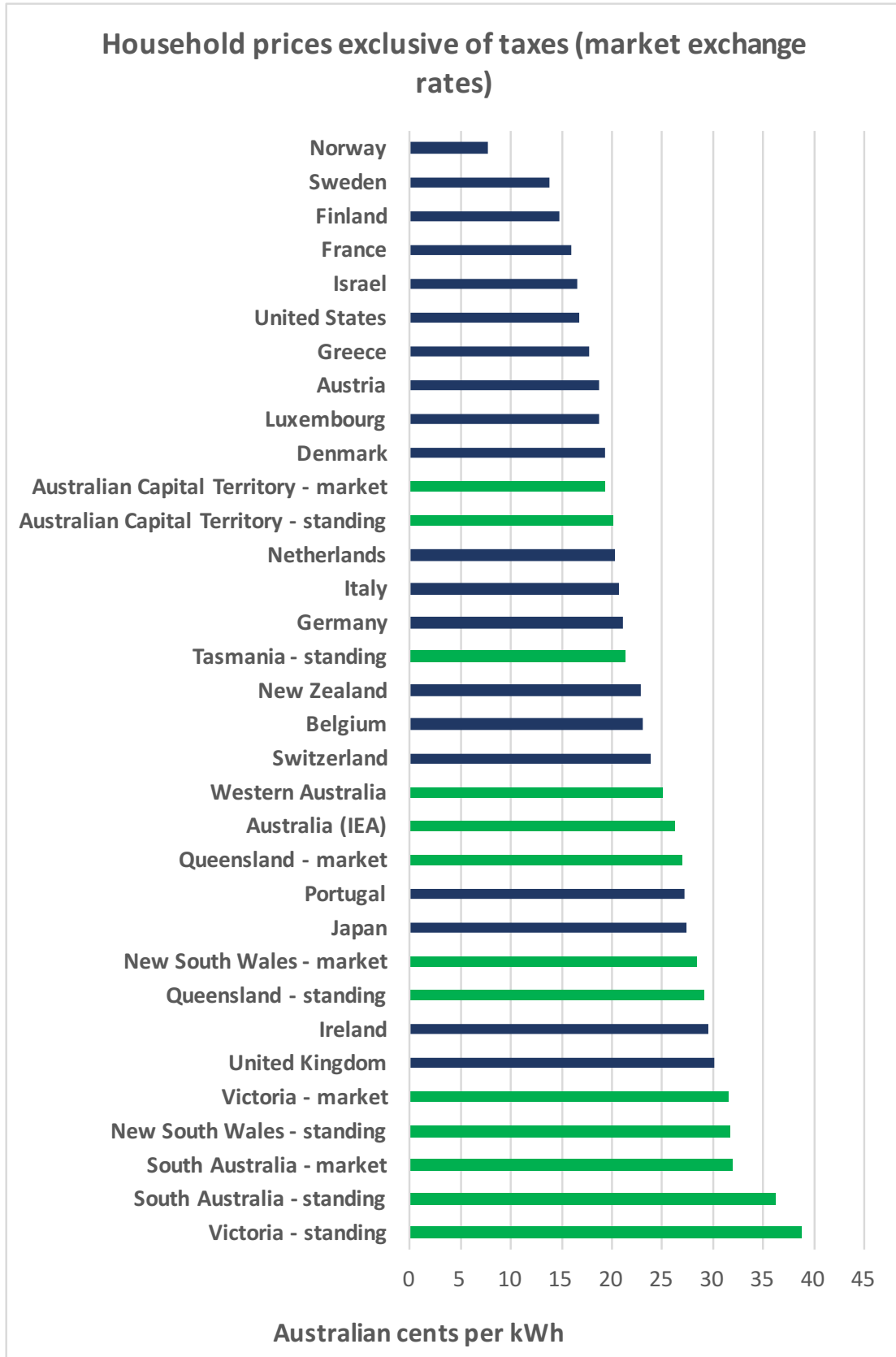


Figure 2. Household electricity prices (cents per kWh) exclusive of taxes at PPP exchange rate

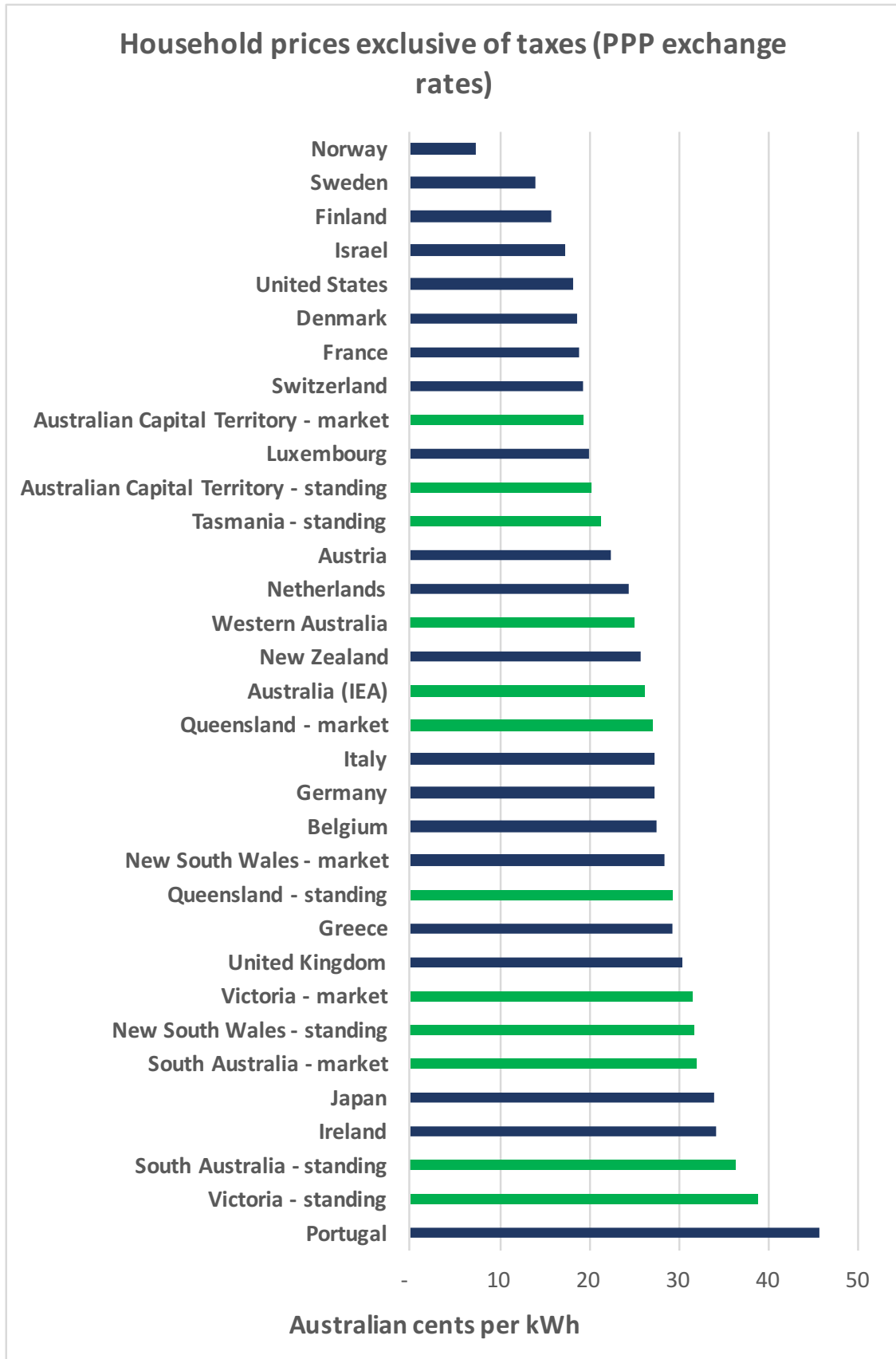


Figure 3. Household electricity prices (cents per kW inclusive of taxes at market exchange rate)

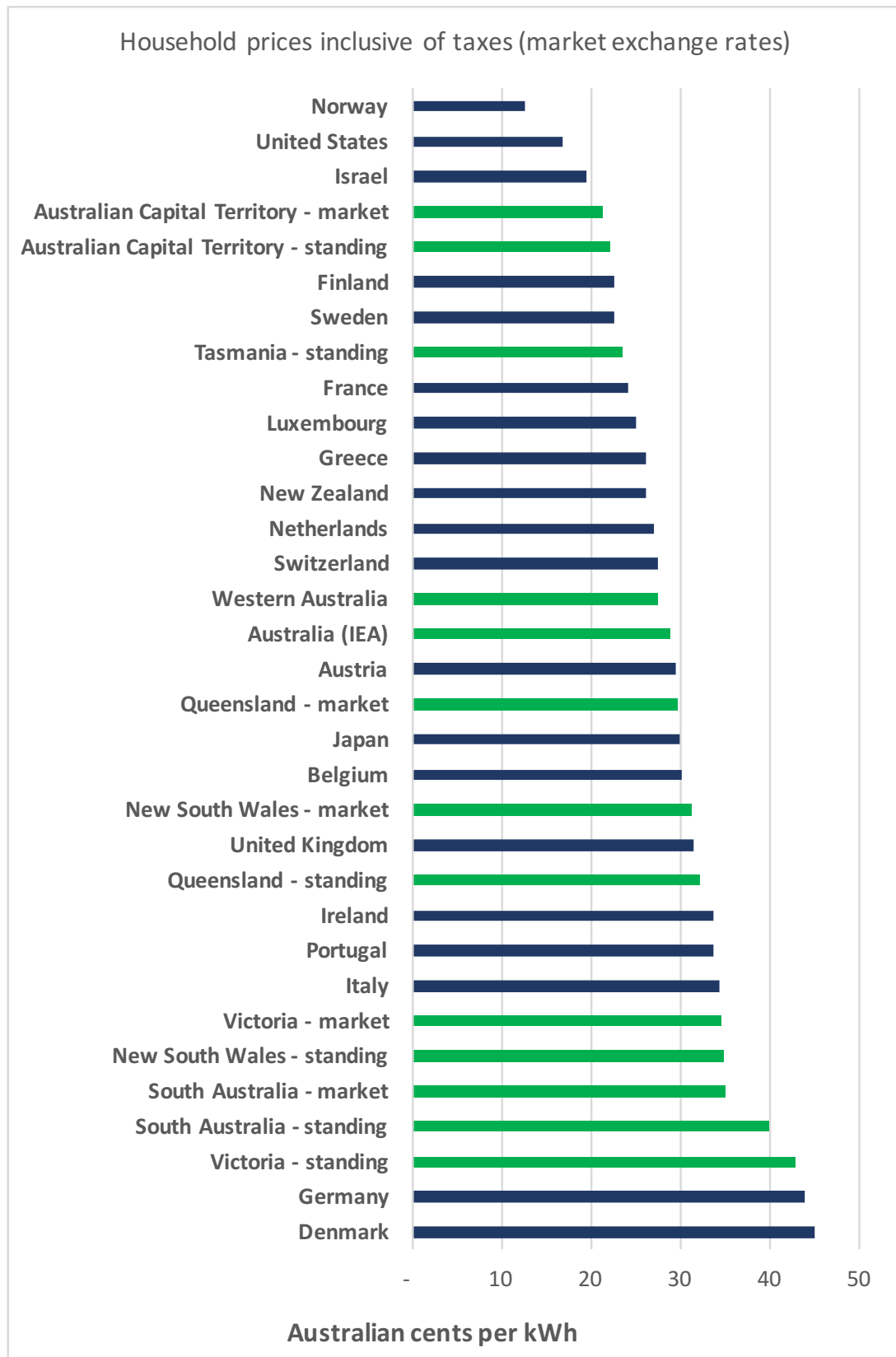


Figure 4. Household electricity prices (cents per kWh) inclusive of taxes at PPP exchange rates



3.2 New South Wales, Victoria and South Australia price comparisons

3.2.1 Average standing offers versus average of lowest market offers versus lowest market offer

The charts in this subsection compares the average annual household bill based on:

1. the average of all retailers' standing offers;
2. the average of all retailers' lowest market offers; and
3. the lowest market offer of all retailers.

These are distinguished by distribution zone for all retailers' offers valid up to 30 June 2016.

Figure 5. Average of all retailers' standing offers (blue), average of lowest market offers (orange), and the lowest market offer (grey) in each distribution zone in New South Wales

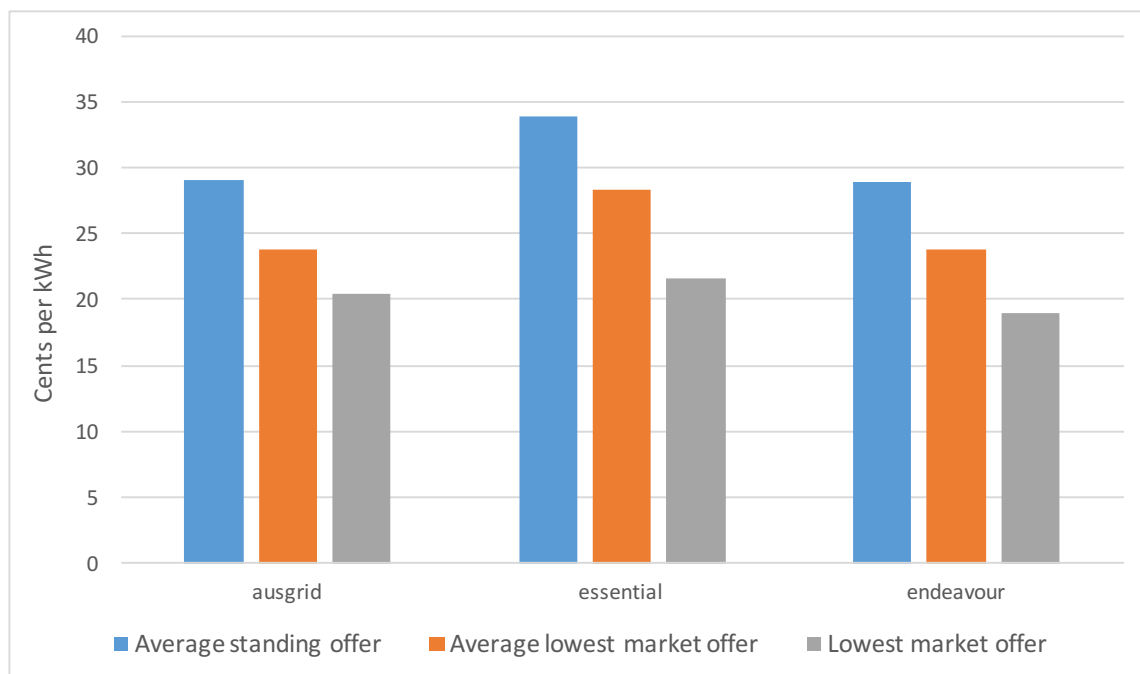


Figure 6. Average of all retailers' standing offers (blue), average of lowest market offers (orange), and the lowest market offer (grey) in each distribution zone in Victoria

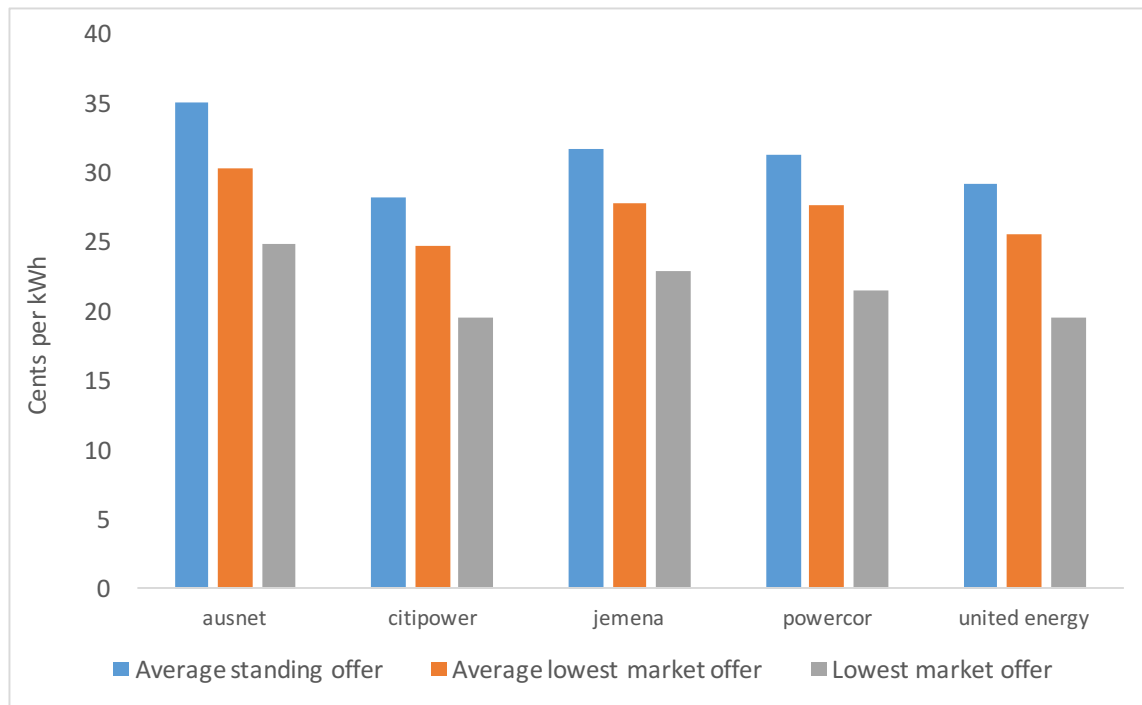
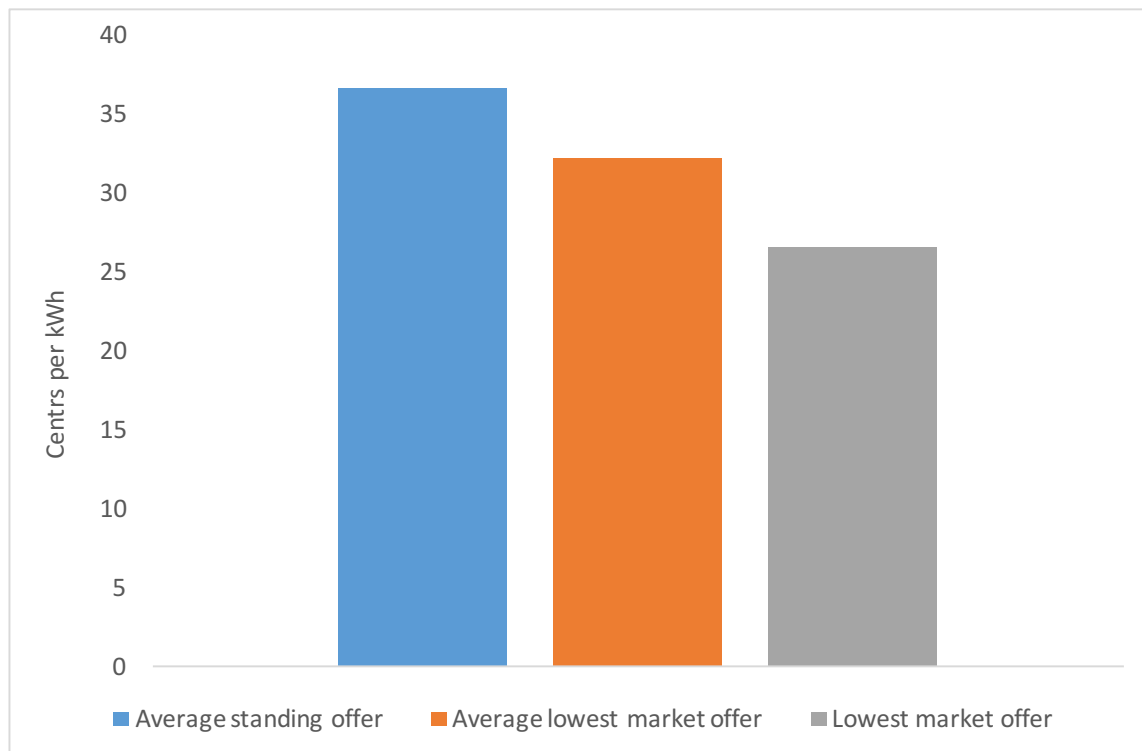


Figure 7. Average of all retailers' standing offers (blue), average of lowest market offers (orange), and the lowest market offer (grey) in each distribution zone in South Australia



3.2.2 Price changes in New South Wales and South Australia from 1 July 2016

The charts in this subsection compare the change in the annual electricity bill, between 30 June 2016 and 1 July 2016, based on the lowest market offers in New South Wales and South Australia. These three largest retailers supply more than 90% of all residential customers in these states.

An examination (not shown here) of the proportionate changes in the bills of the three retailers in each of the three distribution zones in New South Wales shows similar increases in each of the three distribution zones, with the exception of one of the retailers in the Essential distributor's area of service, where prices decreased slightly on 1 July 2016.

Figure 8. Annual bill (\$ per year) based on lowest market offers of the three largest retailers in New South Wales on 30 June 2016 and 1 July 2016

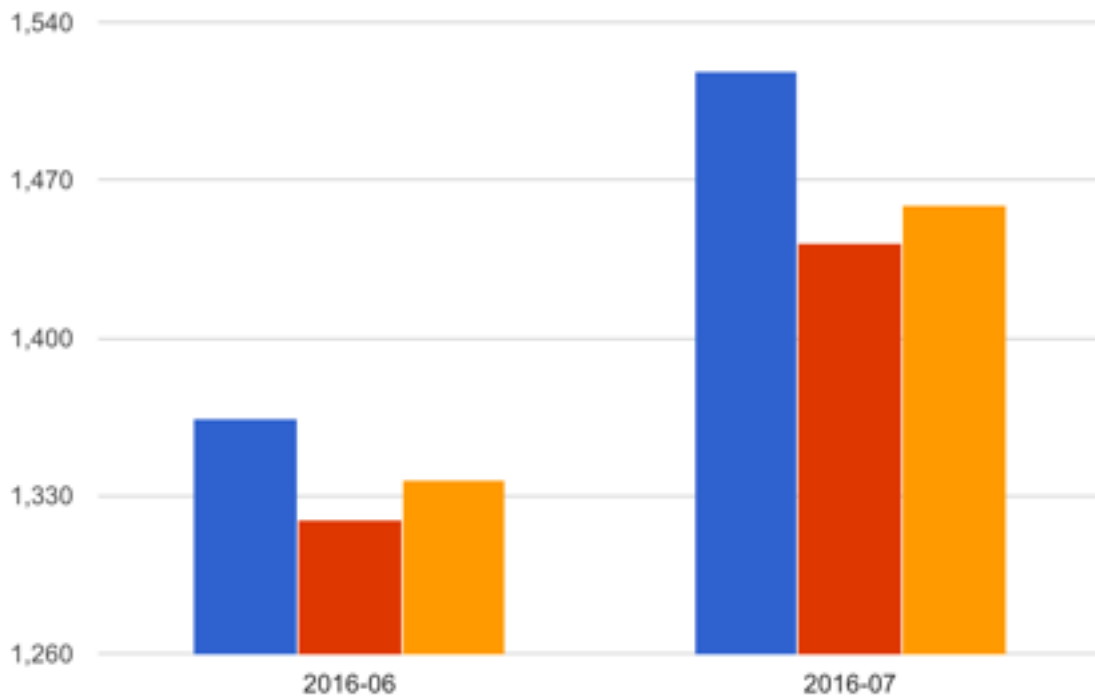
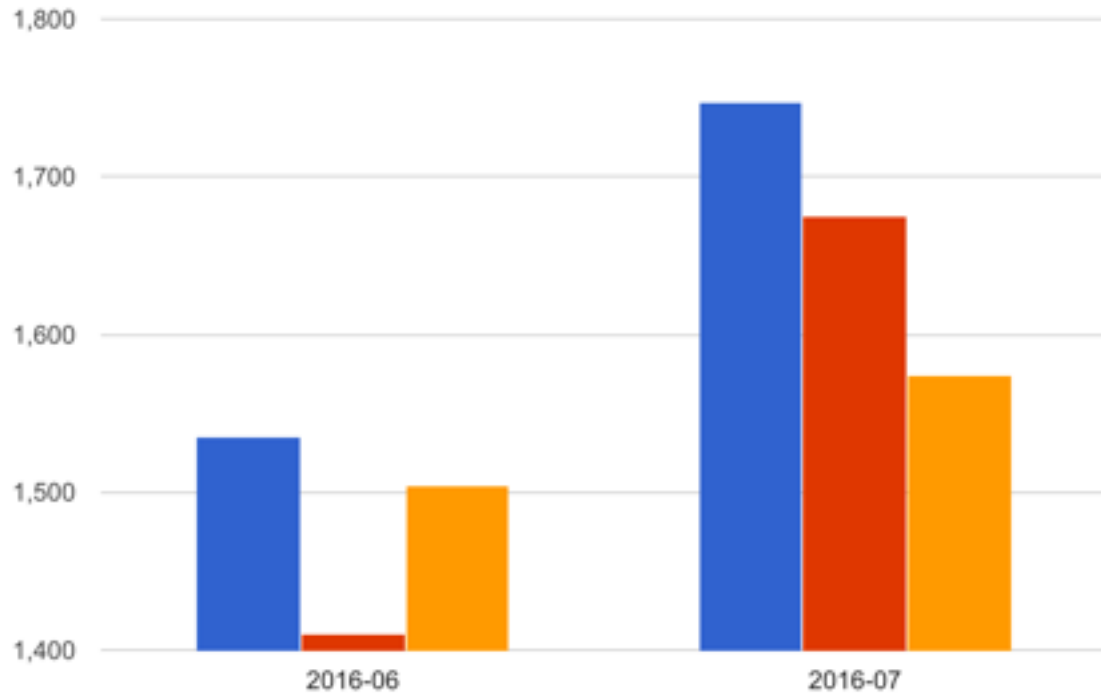


Figure 9. Annual bill (\$ per year) based on lowest market offers of the three largest retailers in South Australia on 30 June 2016 and 1 July 2016



4 Discussion

4.1 International comparison

The international comparison examined the price of electricity for households in Australia and other high income OECD member countries, dominated by countries in Europe but also including Great Britain, the U.S., Israel and Japan.

If the basis of comparison is prices exclusive of taxes, and exchanged to Australian Dollars at market exchange rates, the following is observed:

- The highest five prices are for the market and standing offers in Victoria and South Australia and the standing offers in New South Wales, based on the AEMC's estimate of the representative market and standing offer.
- Australia's "official" price (the price recorded in the IEA's database) is exceeded only by prices paid in Ireland, Portugal, Japan and Italy. This official price is lower than the AEMC's estimates of the representative standing and market offers for most customers.
- Regulated prices in Tasmania and the Australian Capital Territory are lower than the standing and market prices elsewhere in Australia.

Using PPP exchange rates, the AEMC's estimate of representative prices in Victoria, New South Wales and South Australia dominate the top quartile, although prices in Portugal are the highest.

The international comparison is more favourable to Australia if the point of comparison is prices inclusive of taxes. In this case, only standing offers in Victoria and South Australia are in the top quartile.

It should be stressed that these comparisons use the "representative" standing and market offers from the AEMC. Many households have concession discounts - in Victoria approximately one in three households have access to such concessions. This reduces prices by 17.5% in Victoria, for example. Similar reductions are available to households with concessions in other states. In addition, households with dedicated

circuit/controlled load tariffs on most cases pay lower average rates than will have been calculated based on the representative market offers.

It should also be noted that prices in South Australia, New South Wales and Queensland increased significantly on 1 July 2016, as discussed later. This is not reflected in this comparison.

4.2 Victoria, New South Wales and South Australia comparison

Figure 5, Figure 6 and Figure 7 show that there is a big range in prices between the average standing offer, average of the lowest market offers and the lowest market offer of all retailers operating in each state. Typically, the lowest offer is about 30% lower than the average standing offer, and the average of the lowest market offers is about 20% below the average standing offer.

Comparing these prices with those in the comparator OECD member countries, it is clear that the lowest market offer is around the lower quartile of the prices in the comparator OECD member countries (before taxes). On the other hand, the average standing offer is at or near the highest prices in other OECD's countries. This confirms the pattern shown in the first four charts which used the AEMC's 2015 representative price estimates.

4.3 Price increases in South Australia and New South Wales on 1 July 2016

On 1 July 2016 the biggest three retailers (and many but not all of the smaller retailers) operating in South Australia, New South Wales and Queensland increased their prices. The change in the annual bill between 30 June 2016 and 1 July 2016 for these retailers' lowest market offers, using the AEMC's annual demand assumptions, is shown in Figure 8 and Figure 9. After these increases, electricity for households in New South Wales on these offers will join those in South Australia and Victoria in being clearly

higher than the average prices paid by households in other comparator OECD countries prices (before taxes and at market exchange rates).

5 References

AUSTRALIAN ENERGY MARKET COMMISSION 2015. 2015 Residential Electricity Price Trends, Final Report. Sydney.

INTERNATIONAL ENERGY AGENCY 2016. Energy End-Use Prices (Nat.Cur./unit). International Energy Agency.

OECD.STAT 2016. OECD.Stat. Table 4 PPPs and exchange rates.

6 Appendix A: Assumptions used in MarkIntell[Insight]

| Name | Value | Description |
|--------------|-----------------------------------|---|
| FSP | 0.15 | Flexible Summer Peak |
| FNSP | 0.15 | Flexible Non-Summer Peak |
| FSS | 0.25 | Flexible Summer Shoulder |
| FNSS | 0.25 | Flexible Non-Summer Shoulder |
| FSO | 0.1 | Flexible Summer Off-Peak |
| FNSO | 0.1 | Flexible Non-Summer Off-Peak |
| TP5 | 0.55 | Time of use 5day, proportion annual demand, peak |
| TO5 | 0.45 | Time of use 5day,proportion annual demand, off-peak |
| TP7 | 0.65 | Time of use 7day, proportion annual demand, peak |
| TO7 | 0.35 | Time of use 7day,proportion annual demand, off-peak |
| SUM | 0.5 | Summer proportion in seasonal flat rate |
| NSUM | 0.5 | Non-summer proportion in seasonal flat rate |
| STNSP | 0.1 | Annual demand proportion, peak non-summer |
| STSP | 0.2 | Annual demand proportion, peak summer |
| STSOP | 0.45 | Annual demand proportion, off-peak summer |
| STNSOP | 0.25 | Annual demand proportion, off-peak non-summer |
| D | 5936 (NSW), 4026 (VIC), 5000 (SA) | Annual demand (kWh) |
| CLO, CL1,CL2 | 0 | Controlled load / dedicated circuit - Annual demand (kWh) |
| SEO | 0 | Solar export to the grid - Annual demand (kWh) |