

The RACQ publishes comprehensive monthly analysis of petrol price movements for major capital city markets and Queensland regional centres. This report draws on that information to provide an overview of fuel price trends for 2010 with a focus on the key Brisbane capital city market.

This paper looks specifically at the key price determinants including Tapis crude oil, the wholesale price and the final retail pump prices.

## Key Points

- The price of petrol throughout 2010 was generally fairly stable. The rise in the Australian dollar served as a buffer for most of the rises experienced in the crude oil price. The price of ULP at the end of the year would have increased by 14 cpl if the A\$ remained at the June price.
- Brisbane experienced a highly dynamic weekly price cycle with more frequent movements in the cheapest price day of the week. The weekly cycle in 2010 was less stable than previous years, increasing consumer uncertainty as to which was the cheapest day to buy fuel.
- The average price in Brisbane was 2 cpl higher than Sydney, Melbourne and Perth, and 4 cpl higher than Adelaide (the cheapest capital city market).

## Key Numbers

	Average Price	High Price (Date)	Low Price (Date)
ULP (cpl)	127.0	137.7 (08 May)	114.8 (14 Sep)
PULP (cpl)	136.0	146.3 (17 Apr, 16 May)	124.3 (14 Sep)
Diesel (cpl)	127.6	132.3 (28 May)	122.7 (05 Jan)
Exchange Rate (A\$/US\$)	0.921	1.017 (30 Dec)	0.815 (07 Jun)
Tapis Crude (A\$/bbl)	91.5	100.4 (08 Dec)	84.1 (25 May)

## Changes in the Retail, Wholesale and Benchmark Prices

Oil and petrol are traded globally in high volumes; because of this Australia is a price taker for all automotive fuels.

The wholesale price is linked to the Singapore wholesale price for MOGAS 95 – this is used as the basis for producing high octane (95 RON) premium unleaded petrol. The Singapore MOGAS price is in turn linked to the price of Tapis Crude Oil.

Figure 1, displays the wholesale price or the Import Parity Indicator Price (IPIP) of 91 RON Unleaded Petrol (ULP), 95 RON Premium Unleaded Petrol (PULP) and Extra Low Sulphur Diesel (Diesel). As can be seen in this chart there is very little difference in the wholesale price of these products – typically 3.5 cents per litre (cpl).

Considering ULP only, the wholesale price of ULP rose moderately throughout 2010; starting the year at 121.33 cpl and ending at 124.75 cpl. The minimum for 2010 was 114.8 cpl in September and the maximum was 125.71 cpl in December.

Throughout the same timeframe, the price of Tapis Crude Oil (in US dollars – US\$) displayed a greater degree of variation. The price of Tapis Crude commenced the year at US\$75.12 and rose to a high of US\$99.56 at the end of December, with a mid-year low of US\$69.80 per barrel.

Australian wholesale prices were largely buffered from these price movements by similar movements in the value of the Australian dollar (A\$). The A\$ reached a low of 0.8156 US\$ in June, then strengthened steadily until October when the A\$ reached parity with the US\$ and remained at or close to parity for the remainder of the year. The Tapis Crude price rose steadily from a mid-year low to the end of 2010, and the wholesale price of ULP rose steadily in the last quarter. Assuming the Australian dollar had maintained the June exchange rate, the average price of ULP at the end of 2010 would have been 14 cpl higher. Assuming the Australian dollar had maintained the 2010 average exchange rate, the average price of ULP at the end of 2010 would have been 5 cpl higher.

In Figure 1 the yellow, red and purple lines represent the fairly stable wholesale price of ULP, PULP and Diesel in Australian cents per litre, respectively. The light blue line is the fluctuating price of Tapis Crude oil in US\$ per barrel, and the light green line is the A\$/US\$ exchange rate in A\$ per US\$.

**Figure 1: Tapis Crude and the Brisbane Wholesale Prices**

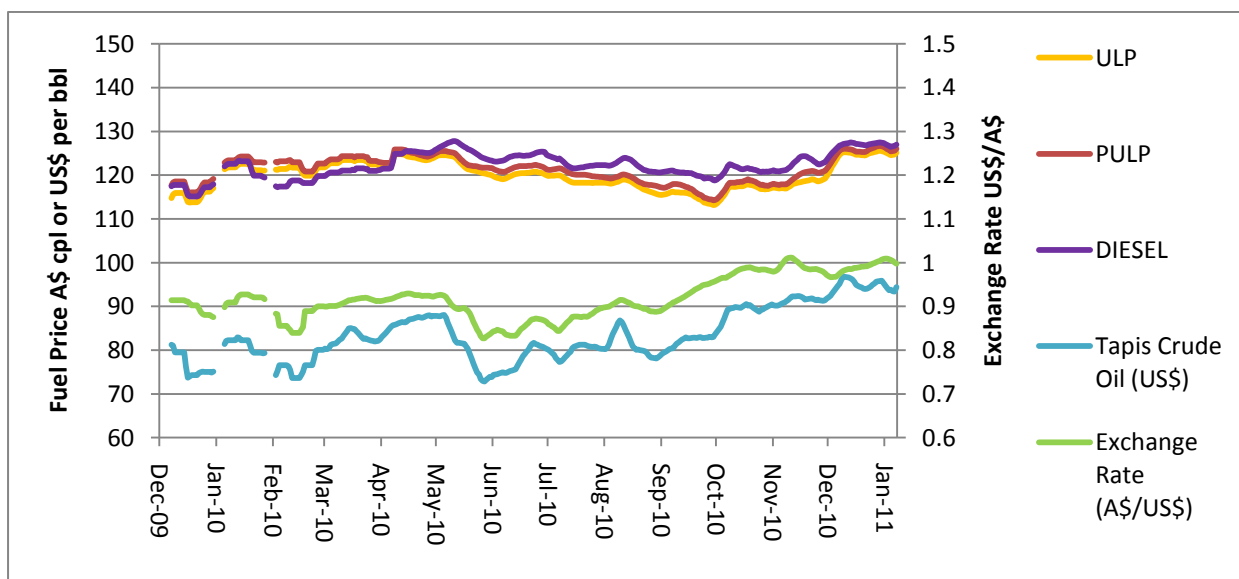
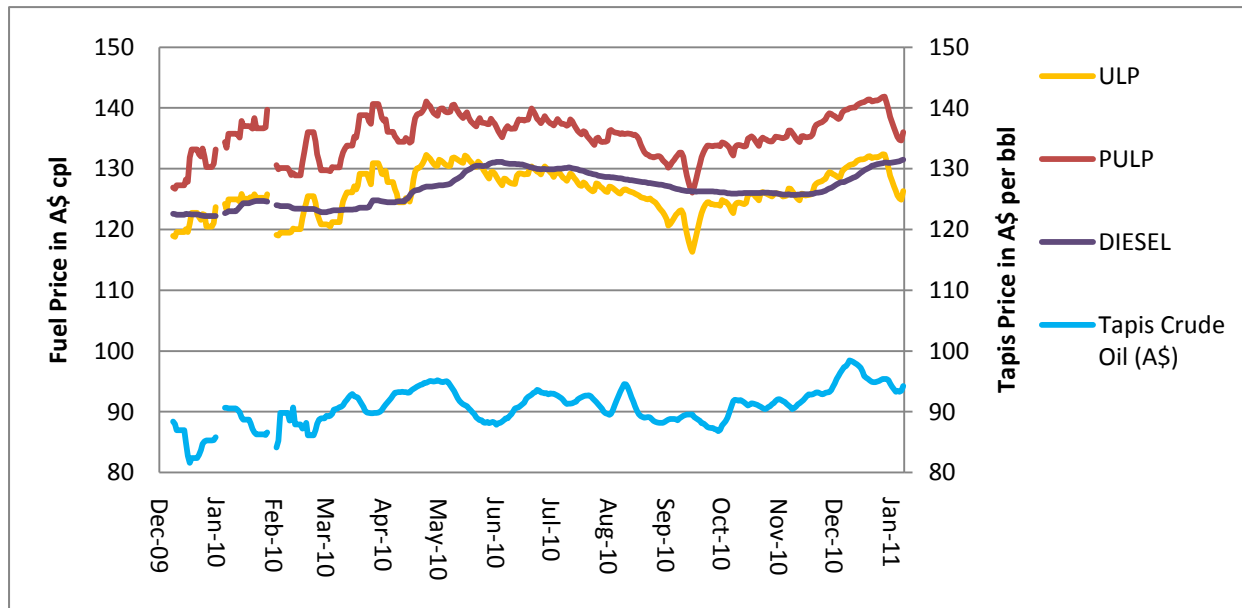


Figure 2 displays the 7-day rolling average retail price for ULP, PULP and Diesel. The 7-day rolling average is used to smooth out the weekly cycle. Figure 2 shows the retail price following a similar trend to the Tapis Crude price in A\$ per barrel which includes the impact of exchange rate variations. Note that there is a delay of 7 to 10 days for the retail price of petrol in Brisbane to reflect changes in the price of Tapis Crude. This is due to time required for shipping and refining.

**Figure 2: Tapis Crude and the Brisbane Retail Prices**

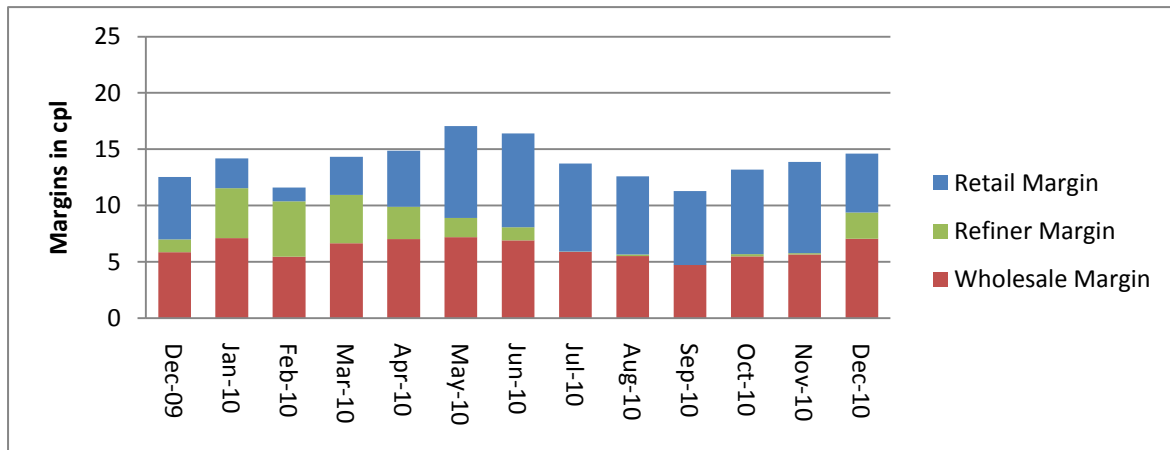


In Figure 2 the yellow and red lines show the 7-day rolling average of the average ULP and PULP price in Brisbane. The purple is the Diesel retail price and the blue line the Tapis Oil price (in A\$ per barrel). The ULP, PULP and Diesel retail price can be seen to follow the trend set by the Tapis price with a 7 to 10 day lag. There are a few exceptions to this, in late April, early October and late December/early January 2011 the ULP and PULP price dropped sharply. In all three cases there was a breakdown in the weekly cycle. Instead of a sharp price rise, the discounted price continued for a second week. It is unclear exactly why the April and October breakdowns occurred. The December/January breakdown occurred because the anticipated price day would have been on New Year's Eve. At this time sales volumes are exceptionally low. Retailers maintained a heavily discounted price to attract the available custom. The average price of ULP in Brisbane for 2010 was 127.0 cpl.

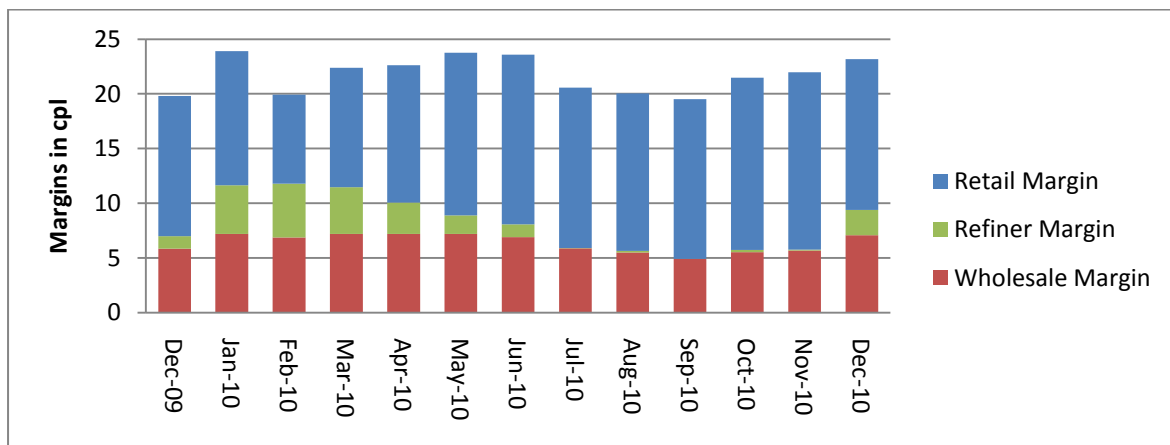
## Margins

Figures 3, 4 and 5 present the total margin for ULP, PULP and Diesel respectively. In each figure the total size of the bar indicates the average total margin for each month. The blue section of the bar indicates the retail margin, the green section indicates the refiner margin and the red section indicates the wholesale margin. The retail margin is calculated from the observed retail price less the wholesale price and local freight costs of 0.7cpl. The refiner and wholesale margins are calculated using the wholesale price less the shipping costs, the 7-day lagged Tapis crude price and other costs. With the limited data available it is not possible to differentiate between the refiner and wholesale margins. Given this deficit of information the wholesale margin is assumed to be 7.2 cpl. If the calculated daily retail or refiner margin falls below zero the wholesale margin is reduced to compensate for this discrepancy. Thus, for most months the average wholesale margin is less than 7.2 cpl.

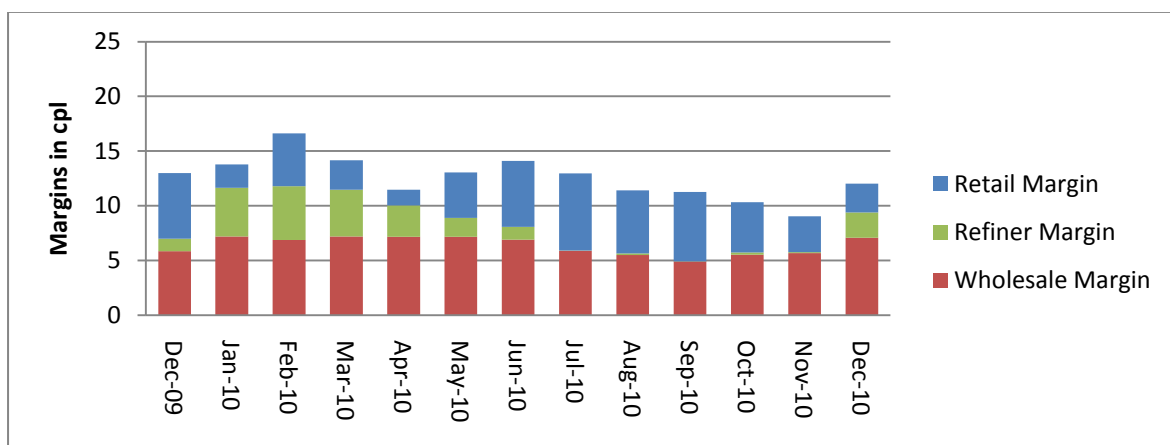
**Figure 3: ULP Margins**



**Figure 4: PULP Margins**



**Figure 5: Diesel Margins**



The average total margin for ULP for all of 2010 was 13.87 cpl, the average margin for PULP for all of 2010 was 21.74 cpl, and the average margin for Diesel for all of 2010 was 12.55 cpl.

The retail margin of PULP is substantially greater than ULP. Given that the wholesale price is only slightly higher than ULP; the margins enjoyed by fuel companies on the sale of PULP are exceptionally high.

The average 2010 margin on Diesel was lower than ULP, and the Diesel price is not subject to a weekly cycle. This may reflect an impact of the global financial crisis as most Diesel is used for freight and industrial purposes. It will be interesting to observe if this trend continues throughout coming years, particularly if we see increasing use of Diesel as an automotive fuel.

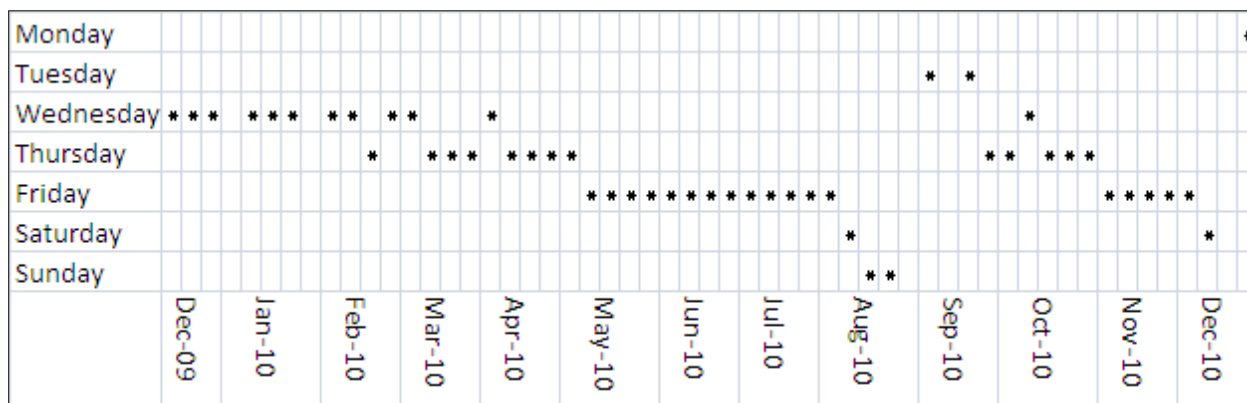
In May retail margins were particularly high. The wholesale price dropped somewhat and the retail price was not reduced to reflect this. It was well in to June before the retail price fell to reflect the reduced wholesale price. At this time the price of MOGAS was decreasing while the price of Tapis Crude was increasing. These price movements act to reduce the refiner and wholesale margins. In this situation the vertically integrated fuel companies increase the retail margins to support the low refiner and wholesale margins.

## Cheap Days

In previous years the weekly cycle within Brisbane remained largely stable. This was not the case in 2010. As shown in Figure 6, the cheap day cycled through the week twice. At the beginning of the year Wednesday was the cheapest day to buy ULP. This slowly progressed through the week until the end of July, when Friday was the cheapest day to buy ULP. In August, September and October the cheap day rapidly moved through the weekend and the first half of the week. The cheap day returned to Friday for November and most of December before rapidly cycling through the weekend again to end the year with Monday as the cheapest day to buy ULP. Unlike previous years, the most common cheap day to buy petrol in Brisbane in 2010 was a Friday.

This evidence reinforces the need for motorists to remain well informed and vigilant about price trends in order to be able to make their purchase at the lower end of the cycle.

**Figure 6: Brisbane Cheap Days**



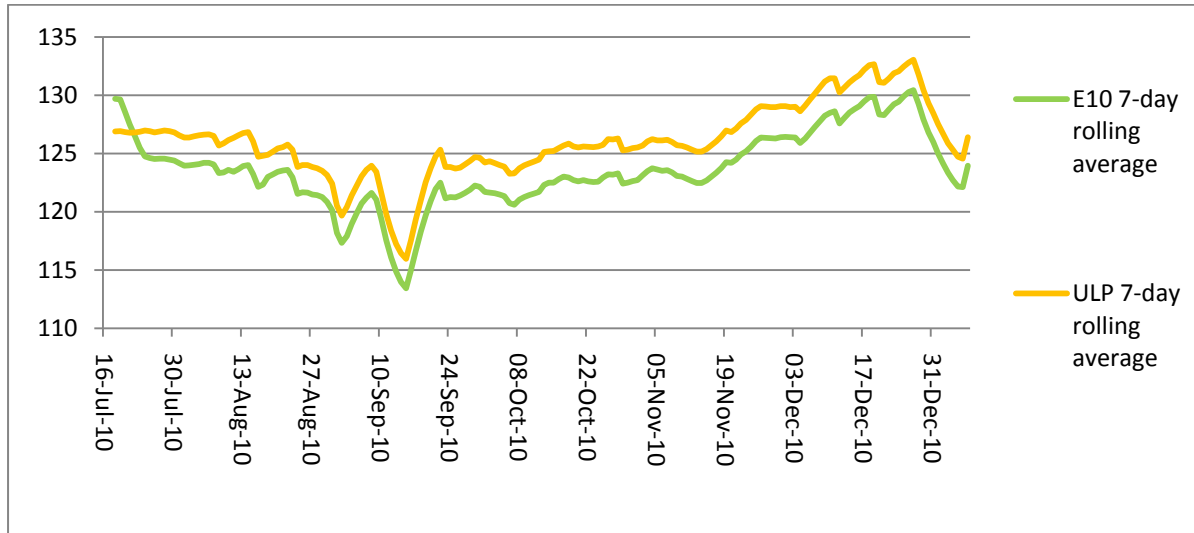
## Ethanol and Ethanol Blended Fuels

A wide-scale roll-out of E10 (an ethanol blended fuel comprising 10% ethanol and 90% ULP) was observed in Queensland in 2010. This occurred in response to the Queensland Government's proposed mandate for ethanol to constitute a minimum of 5% by volume of ULP sold from the start of 2011. This would require E10 to displace half of current ULP sales. In response to the anticipated mandate many petrol stations replaced ULP with E10 as the standard grade fuel (most notably BP). In October 2010 approximately 62% of sites in the SEQ market place sold E10 and 16% of sites did not sell ULP. The Queensland Government announced late in 2010 that it would delay the legislated mandate, citing a lack of domestic production

Data for the price of E10 is limited to the second half of 2010. Figure 7 displays the 7-day rolling average price of E10 and ULP (displayed as the green and yellow lines respectively). As can be seen in Figure 7 the price of E10 tracked below the price of ULP. The average price difference

between E10 and ULP was 2.6 cpl. It is worth noting that fuel consumption increases by 2 to 3% when E10 is used in place of ULP. Therefore, a price difference of between 2.5 and 3.8 cpl is required for E10 to represent a cost saving (using the Brisbane average price for ULP of 127.0 cpl).

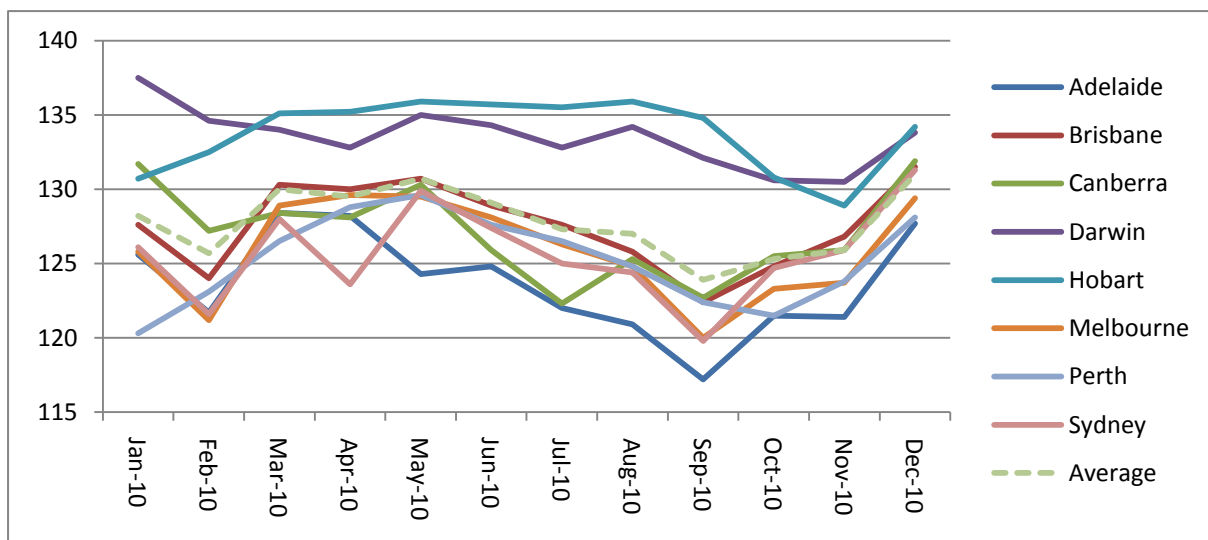
**Figure 7: 7-day Rolling Average Retail Price of E10 and ULP**



## Comparison to the Other Capital Cities

Figures 8 and 9 display the average prices of ULP and the retail margin on ULP for the state and territory capital cities. In these figures the Brisbane price is represented by the dark red line and the average of all capitals is represented by the hashed pale green line. The price in the other capital cities are represented by the different coloured lines as per the key displayed to the right of both figures. The tabulated values are presented in Appendix 1.

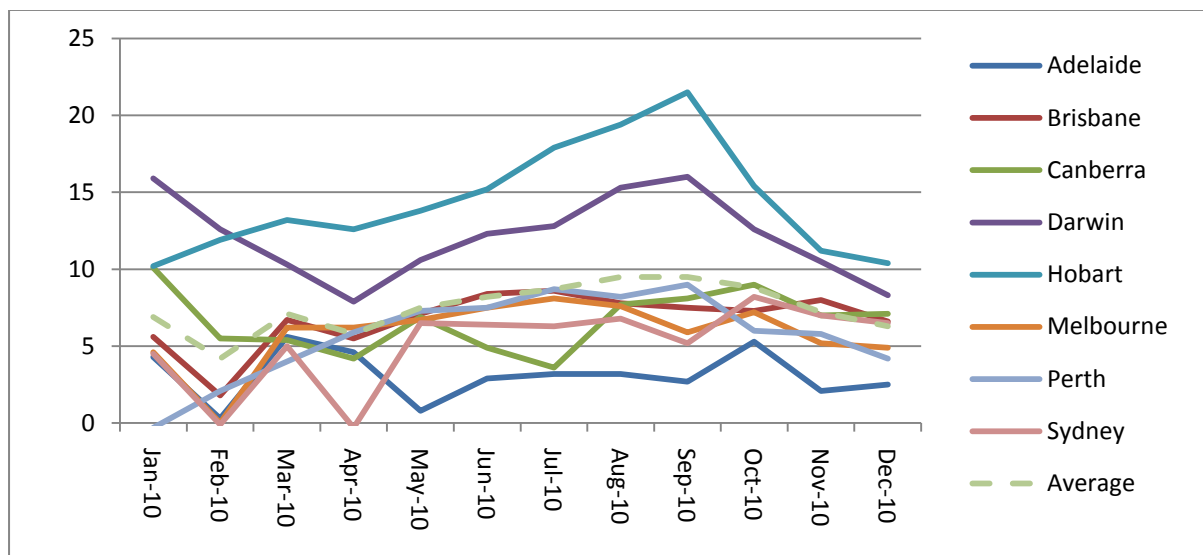
**Figure 8: Average ULP Prices for all Capital Cities**



Brisbane was more expensive than Sydney, Melbourne, Perth and Adelaide, but cheaper than Hobart and Darwin. The average price in Brisbane was often the same as that in Canberra and close to the average of all the capitals.

The relatively high price of ULP in Brisbane is due in large part to the dominance of the major supermarkets in the Brisbane market and the absence of a major discounter. The independent retailers in Brisbane do not heavily discount their fuel as they do in other capitals, preferring to follow the price trend set by the major fuel retailers.

**Figure 9: Average ULP Retail Margins**



Adelaide was consistently the cheapest capital city in which to buy ULP. This is due to the high level of competition in the Adelaide petrol market. Unlike Brisbane, the independents in the Adelaide market pursue a high volume low price policy.

## Regional Queensland

Table 1 displays the average monthly price of ULP in major Queensland cities and towns. The average price for ULP across Queensland in 2010 was 131.3 cpl. Table 2 displays the average monthly price of Diesel in major Queensland cities and towns. The average price for Diesel across Queensland in 2010 was 132.8 cpl.

In Table 1 and 2 the green shading highlights centres where the average monthly price is less than the price in Brisbane. The red shading highlights centres where the average monthly price is more than 10 cpl greater than the Brisbane price.

At an average of 123.6 cpl, Toowoomba was the cheapest place to buy ULP in Queensland in 2010. The Toowoomba average price was substantially lower than the average Brisbane price of 127.0 cpl. The price of ULP in Toowoomba was low due to high sales volumes, low freight costs and a highly competitive fuel market. Bundaberg and Townsville, with an average ULP price of 126.2 and 126.7 cpl, respectively, were also cheaper than Brisbane.

Weipa, with an average ULP price of 156.8 cpl, was the most expensive of all centres (included in this report) in which to buy fuel in Queensland. Normanton and Charleville with an average ULP price of 146.4 and 139.8 cpl, respectively, were the second and third most expensive centres.

At an average of 126 cpl, Caloundra was the cheapest place to buy Diesel in Queensland in 2010. Caloundra was the only centre where the average price was lower than the average Brisbane price of 127.7 cpl. Brisbane with an average of 127.7 cpl was next cheapest place by Diesel. Ipswich and Toowoomba, with an average Diesel price of 128.0 and 128.1 cpl, respectively, were only marginally more expensive than Brisbane.

Weipa, with an average Diesel price of 153.3 cpl, was the most expensive of all centres (included in this report) in which to buy fuel in Queensland. Normanton, Charleville and Longreach with an average Diesel price of 146.8 cpl, 140.4 cpl and 137.8, respectively, were the second, third and fourth most expensive centres.

### **Data Sources**

All data presented in this report are RACQ calculations using FUELtrac and motormouth.com.au data.

**8 February 2010**

**RACQ Public Policy Department**

For further information please contact RACQ Public Policy on 3872 8622

**Table 1: Average ULP Prices for Queensland Regional Centres**

	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	2010 Average	2009 Average
Brisbane	127.8	124.0	130.3	130.0	130.7	128.9	127.6	125.8	122.4	124.8	126.8	131.5	127.0	117.9
Bowen	129.4	130.1	130.3	130.8	133.0	133.3	133.1	132.1	127.7	126.3	127.9	131.1	130.4	120.0
Bundaberg	128.4	127.6	126.9	128.2	131.8	129.2	126.9	125.1	121.8	120.7	121.7	126.6	126.2	119.3
Cairns	128.3	128.9	129.2	129.3	130.5	129.6	128.7	127.7	126.9	126.9	127.0	129.7	128.6	118.4
Caloundra	128.1	122.4	131.1	131.3	132.3	126.9	125.4	125.4	124.2	124.5	126.6	131.0	127.4	117.9
Charleville	142.6	141.8	141.9	141.3	142.7	142.9	142.9	141.6	133.8	132.5	134.0	139.6	139.8	131.3
Charters Towers	130.1	130.3	130.7	133.8	133.7	134.6	135.7	131.6	130.3	127.8	127.3	131.5	131.5	122.5
Emerald	130.0	129.5	129.4	130.1	132.7	132.9	132.4	129.0	128.9	129.4	129.6	133.1	130.6	118.5
Gladstone	129.5	130.9	131.2	131.5	132.7	132.4	132.2	131.5	127.6	127.3	127.8	131.8	130.5	120.2
Gold Coast	128.6	124.6	130.6	131.1	131.3	129.4	126.8	125.2	123.1	125.1	126.9	131.9	127.9	118.8
Goondiwindi	127.7	127.0	125.9	128.1	131.8	133.4	131.4	129.9	129.7	129.0	129.0	130.2	129.4	117.1
Hervey Bay	129.1	130.0	130.2	130.7	132.4	129.8	129.2	128.5	127.0	125.9	126.2	129.0	129.0	119.1
Ipswich	127.9	124.9	130.5	130.7	131.6	129.1	127.6	126.8	122.9	124.7	127.0	132.0	128.0	118.0
Kingaroy	127.1	127.2	127.6	127.9	130.4	130.8	130.5	129.7	128.5	127.4	127.4	129.9	128.7	117.1
Longreach	134.6	134.3	135.4	136.7	138.4	138.2	138	138.1	138.1	136.6	136.2	138.0	136.9	126.4
Mackay	128.6	128.7	128.4	128.6	132.4	132.8	130	124.3	123.1	121.4	121.5	128.5	127.4	115.9
Maryborough	128.1	128.1	128.7	130.4	131.8	130.5	129.3	128.3	127.1	125.8	126.1	130.0	128.7	119.1
Mt Isa	130.3	131.2	133.1	134.6	137.0	137.0	136.1	135.9	135.3	134.7	134.5	138.5	134.9	124.2
Normanton	144.4	147.3	148.9	147.9	148.2	147.0	147.6	146.6	143.7	141.8	144.8	149.0	146.4	135.4
Rockhampton	131.4	132.8	131.6	132.6	133.7	133.5	133.1	132.7	129.7	128.0	128.1	132.2	131.6	121.6
Roma	130.8	130.1	130.9	131.4	134.1	133.9	133.4	132.5	131.8	132.1	132.3	133.6	132.2	122.5
Sunshine Coast	127.9	126.1	129.7	130.9	131.7	129.5	128.3	127.5	125.5	125.2	126.3	130.3	128.2	118.4
Toowoomba	125.5	124.6	123.1	123.3	130.3	128.3	125.3	123.2	119.4	117.2	117.2	125.9	123.6	112.2
Townsville	127.5	126.1	125.6	126.0	132.2	130.5	128.7	126.2	123.5	122.8	122.4	129.4	126.7	115.8
Warwick	126.5	127.3	128	128.7	132.5	132.8	131.8	129.9	127.4	123.6	124.0	128.4	128.4	116.2
Weipa	160.3	158.3	nd	nd	nd	nd	157.9	155.2	153.3	152.4	155.5	161.3	156.8	155.0

Key: The green shaded cells indicate an average price lower than the Brisbane price for any given month  
The red shaded cells indicate an average price 10 cpl greater than the Brisbane price  
nd indicates that no data is available

Source: FUELtrac

**Table 2: Average Diesel Prices for Queensland Regional Centres**

	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	2010 Average	2009 Average
Brisbane	125.1	124.3	124.9	127.5	130.7	130.4	129.2	127.9	126.1	125.8	128.4	131.8	127.7	117.8
Bowen	128.0	128.1	128.0	128.4	132.5	133.0	133.0	132.6	129.5	128.1	128.6	130.8	130.1	122.0
Bundaberg	127.6	125.9	125.8	128.3	132.4	129.9	129.6	127.8	127.5	126.7	126.8	130.3	128.2	120.8
Cairns	128.3	128.0	128.2	129.3	131.4	130.2	129.7	129.4	128.8	128.9	129.2	130.8	129.4	123.0
Caloundra	123.8	121.7	123.2	126.2	130.0	129.2	128.9	127.1	124.7	123.8	124.5	128.3	126.0	116.8
Charleville	143.0	139.4	138.9	139.0	143.5	143.9	143.9	142.5	136.6	135.9	136.7	141.2	140.4	132.4
Charters Towers	130.9	131.8	131.5	132.0	134.9	136.1	136.6	135.4	130.5	129.0	128.7	131.2	132.4	124.2
Emerald	129.6	128.9	129.0	131.1	133.8	132.6	132.2	132.0	130.3	129.7	130.5	133.6	131.1	129.2
Gladstone	128.9	129.0	129.7	130.9	133.5	133.3	133.0	132.6	130.3	129.0	129.4	132.2	131.0	121.8
Gold Coast	125.5	124.3	124.8	128.1	131.2	131.1	130.2	128.4	126.9	126.7	128.4	132.3	128.2	121.1
Hervey Bay	128.4	128.5	128.3	129.3	132.5	132.4	131.8	130.7	129.0	128.3	129.3	131.5	130.0	118.0
Ipswich	125.3	124.2	124.1	126.3	130.5	131.2	130.9	129.0	127.4	127.1	127.7	132.1	128.0	121.7
Kingaroy	128.3	126.7	126.5	128.8	133.0	133.7	132.0	131.4	128.6	128.1	128.4	132.1	129.8	118.5
Longreach	134.7	134.1	135.0	137.9	140.5	138.9	139.2	139.5	139.0	136.8	137.3	141.1	137.8	119.8
Mackay	128.8	128.1	127.5	127.8	132.4	132.9	132.3	129.9	129.9	129.9	129.9	129.9	129.9	127.5
Maryborough	127.2	126.7	126.7	128.5	131.3	130.2	130.1	129.4	128.1	127.3	127.9	131.2	128.7	119.4
Mt Isa	129.8	129.3	129.7	132.8	134.8	133.9	133.5	133.1	132.0	131.8	133.3	136.6	132.6	119.4
Normanton	143.8	142.5	144.0	145.6	149.5	148.5	149.0	147.9	146.7	145.8	147.7	150.5	146.8	127.0
Rockhampton	130.5	130.8	131.0	132.5	134.6	134.3	134.1	134.2	131.7	130.4	131.3	133.6	132.4	136.3
Roma	132.5	130.5	131.9	132.8	135.4	134.9	134.9	134.5	132.4	131.3	131.2	134.5	133.1	123.5
Sunshine Coast	126.8	125.7	126.5	129.2	132.1	131.4	130.8	130.1	128.4	127.6	128.7	131.9	129.1	125.0
Toowoomba	126.5	125.2	125.1	128.3	132.4	130.9	130.2	129.2	126.4	125.2	126.6	131.6	128.1	118.5
Townsville	127.0	125.5	126.2	128.4	132.6	131.6	130.5	128.9	127.1	126.1	127.5	130.4	128.5	118.0
Warwick	127.2	127.5	127.7	129.4	132.9	131.9	131.1	130.0	128.5	127.1	127.7	131.7	129.4	118.8
Weipa	152.4	148.5	nd	154.6	157.0	156.0	153.5	153.1	151.1	151.0	152.5	157.1	153.3	141.2

Key: The green shaded cells indicate an average price lower than the Brisbane price for any given month  
The red shaded cells indicate an average price 10 cpl greater than the Brisbane price  
nd indicates that no data is available

Source: FUELtrac

## Appendix 1: ULP Prices for all Capital Cities

Below are the average ULP retail price and retail margins for all Australian capital cities.

**Table 3: Average ULP Prices for all Capital Cities**

	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	2010 Average
Adelaide	125.6	121.7	128.4	128.2	124.3	124.8	122.0	120.9	117.2	121.5	121.4	127.7	123.6
Brisbane	127.6	124.0	130.3	130	130.7	128.9	127.6	125.8	122.4	124.8	126.8	131.5	127.6
Canberra	131.7	127.2	128.4	128.1	130.3	125.9	122.3	125.3	122.7	125.5	125.9	131.9	127.1
Darwin	137.5	134.6	134.0	132.8	135.0	134.3	132.8	134.2	132.1	130.6	130.5	133.8	133.5
Hobart	130.7	132.5	135.1	135.2	135.9	135.7	135.5	135.9	134.8	130.8	128.9	134.2	133.8
Melbourne	125.8	121.2	128.9	129.6	129.5	128.1	126.3	124.8	120.0	123.3	123.7	129.4	125.9
Perth	120.3	123.1	126.5	128.8	129.6	127.6	126.5	124.8	122.4	121.5	123.8	128.1	125.3
Sydney	126.1	121.6	128.0	123.6	129.9	127.4	125.0	124.4	119.8	124.7	125.9	131.3	125.6
Average	128.2	125.7	130.0	129.5	130.7	129.1	127.3	127.0	123.9	125.3	125.9	131.0	127.8

Source: MotorMouth.com.au

**Table 4: Average ULP Retail Margins for all Capital Cities**

	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	2010 Average
Adelaide	4.3	0.3	5.6	4.6	0.8	2.9	3.2	3.2	2.7	5.3	2.1	2.5	3.1
Brisbane	5.6	1.8	6.7	5.5	7.1	8.4	8.6	7.8	7.5	7.3	8.0	6.6	6.7
Canberra	10.1	5.5	5.4	4.2	6.9	4.9	3.6	7.7	8.1	9.0	7.0	7.1	6.6
Darwin	15.9	12.6	10.3	7.9	10.6	12.3	12.8	15.3	16.0	12.6	10.5	8.3	12.1
Hobart	10.2	11.9	13.2	12.6	13.8	15.2	17.9	19.4	21.5	15.4	11.2	10.4	14.4
Melbourne	4.6	0.0	6.2	6.2	6.7	7.5	8.1	7.6	5.9	7.2	5.2	4.9	5.8
Perth	-0.3	2.1	4.0	5.9	7.3	7.5	8.7	8.2	9.0	6.0	5.8	4.2	5.7
Sydney	4.5	-0.1	5.0	-0.3	6.5	6.4	6.3	6.8	5.2	8.2	7.0	6.5	5.2
Average	6.9	4.2	7.1	5.8	7.5	8.2	8.7	9.5	9.5	8.8	7.2	6.3	7.5

Source: MotorMouth.com.au