

# WEEKLY ELECTRICITY MARKET ANALYSIS



AUSTRALIAN ENERGY  
REGULATOR

20 November - 26 November 2011

## Summary

Weekly average spot prices ranged from \$27/MWh in Victoria to \$32/MWh in New South Wales.

## Spot market prices

Figure 1 sets out the volume weighted average (VWA) prices for the week 20 November to 26 November and the 11/12 financial year to date (YTD) across the NEM. It compares these prices with price outcomes from the previous week and year to date respectively.

**Figure 1: Volume weighted average spot price by region (\$/MWh)**

	Qld	NSW	VIC	SA	Tas
Average price for 20 Nov - 26 Nov 2011	31	32	27	31	30
% change from previous week*	-8	-12	-5	-4	-3
11/12 financial YTD	29	32	28	37	31
% change from 10/11 financial YTD **	42	15	18	34	-12

\*The percentage change between last week's average spot price and the average price for the previous week. Calculated on VWA prices prior to rounding.

\*\*The percentage change between the average spot price for the current financial year and the average spot price for the previous financial year. Percentage changes are calculated on VWA prices prior to rounding.

Further information is provided in Appendix A when the spot price exceeds three times the weekly average and is above \$250/MWh or less than -\$100/MWh. Longer term market trends are attached in Appendix B<sup>1</sup>.

## Financial markets

Figures 2 to 9 show futures contract<sup>2</sup> prices traded on the Australian Securities Exchange (ASX) as at close of trade on Monday 28 November 2011. Figure 2 shows the base futures contract prices for the next three calendar years, and the average over these three years. Also shown are percentage changes<sup>3</sup> from the previous week.

<sup>1</sup> Monitoring the performance of the wholesale market is a key part of the AER's role and an overview of the market's performance in the long term is provided on the AER website. Long-term statistics can be found there on, amongst other things, demand, spot prices, contract prices and frequency control ancillary services prices.

To access this information go to

[www.aer.gov.au](http://www.aer.gov.au) -> Monitoring, reporting and enforcement -> Electricity market reports -> Long-term analysis.

<sup>2</sup> Futures contracts traded on the ASX are listed by d-cyphaTrade ([www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)). A futures contract is typically for one MW of electrical energy per hour based on a fixed load profile. A base load profile is defined as the base load period from midnight to midnight Monday to Sunday over the duration of the contract quarter. A peak load profile is defined as the peak-period from 7 am to 10 pm Monday to Friday (excluding Public holidays) over the duration of the contract quarter.

<sup>3</sup> Calculated on prices prior to rounding.

**Figure 2: Base calendar year futures contract prices (\$/MWh)**

	QLD		NSW		VIC		SA	
Calendar Year 2012	43*	1%	50	2%	44	2%	55	-1%
Calendar Year 2013	55*	2%	61*	2%	56*	3%	62	7%
Calendar Year 2014	56	0%	59	0%	58	0%	69	0%
Three year average	52	1%	56	1%	53	1%	62	2%

Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

\* denotes trades in the product.

Figure 3 shows the \$300 cap contract price for Q1 2012 and calendar year 2012 and the percentage change<sup>4</sup> from the previous week.

**Figure 3: \$300 cap contract prices (\$/MWh)**

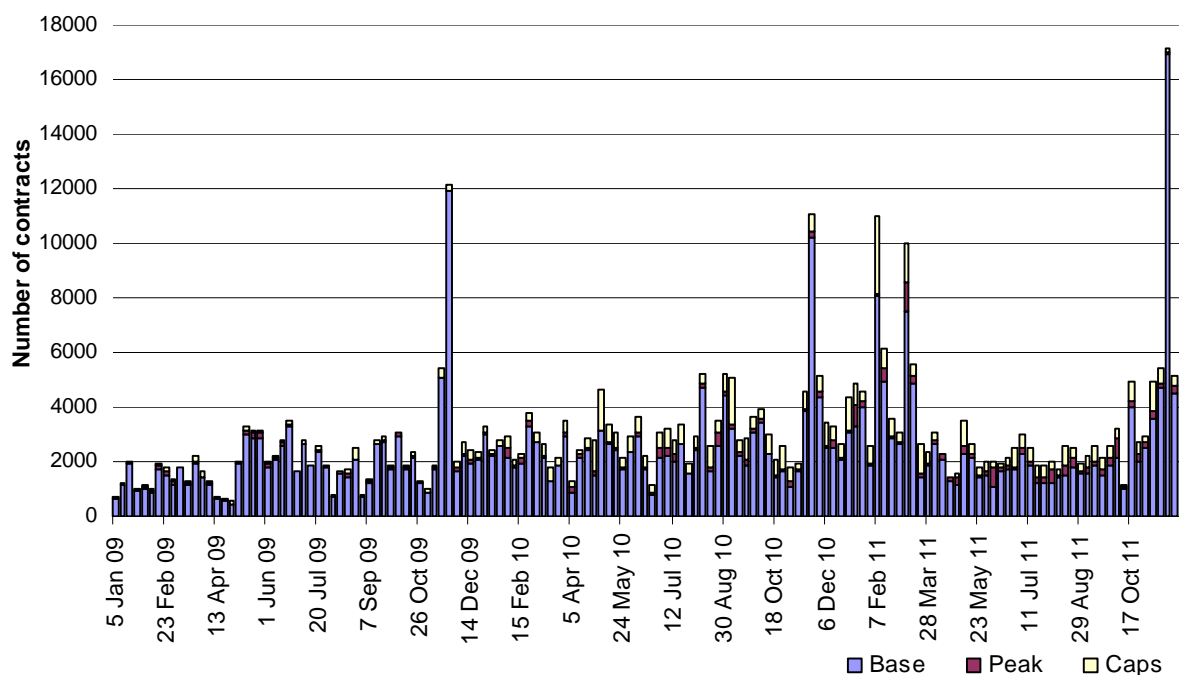
	QLD		NSW		VIC		SA	
Q1 2012 (% change)	14*	4%	18*	4%	18*	5%	38	0%
2012 (% change)	7	-2%	10	2%	7	3%	13	0%

Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

\* denotes trades in the product.

Figure 4 shows the weekly trading volumes for base, peak and cap contracts. The date represents the end of the trading week.

**Figure 4: Number of exchange traded contracts per week**

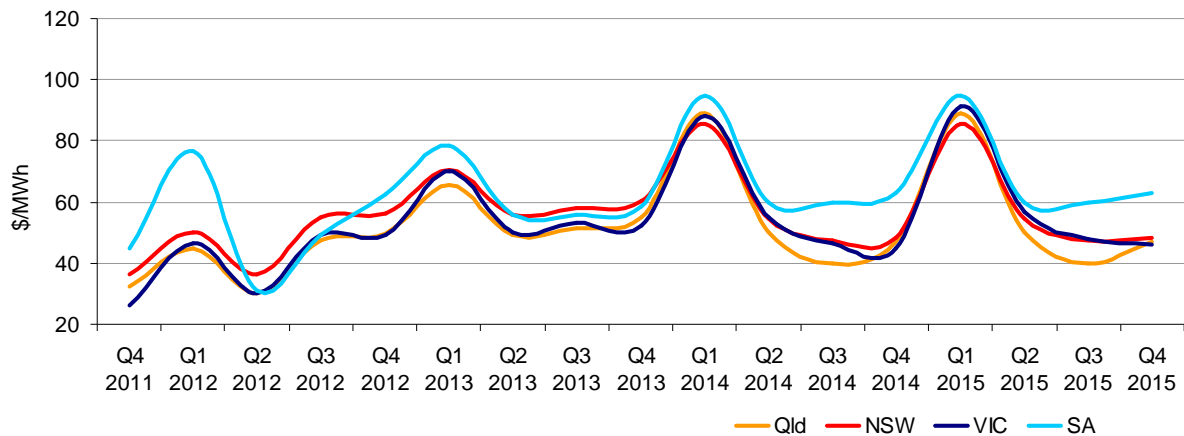


Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

<sup>4</sup> Calculated on prices prior to rounding.

Figure 5 shows the prices for base contracts for each quarter for the next four financial years.

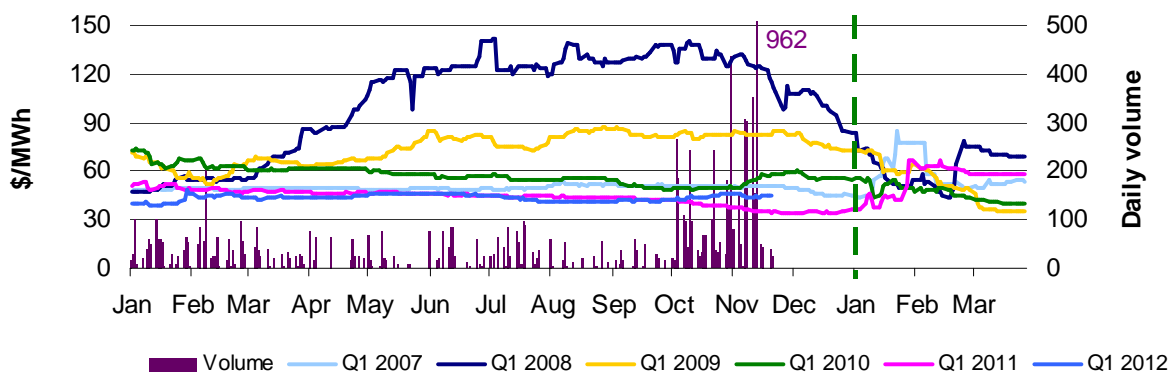
**Figure 5: Quarterly base future prices Q4 2011 – Q4 2015**



Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

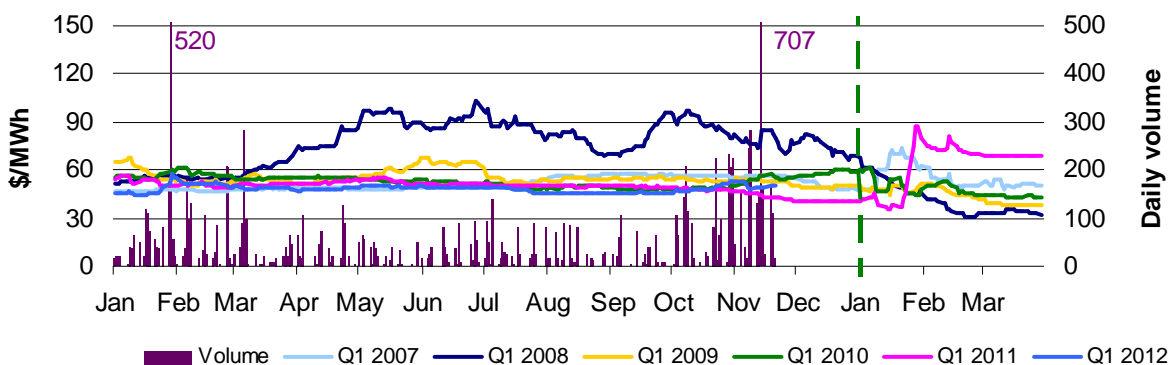
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2007, 2008, 2009, 2010, 2011 and 2012. Also shown is the daily volume of Q1 2012 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased. To understand the diagrams, the dark-blue line in figure 6 demonstrates that throughout the middle of 2007, the market had an expectation of very high spot prices in the first quarter of 2008.

**Figure 6: Queensland Q1 2007, 2008, 2009, 2010, 2011 and 2012**



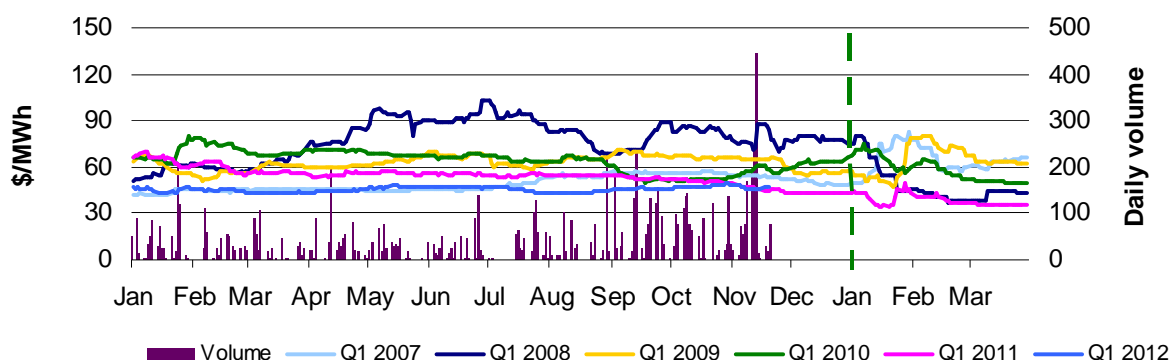
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

**Figure 7: New South Wales Q1 2007, 2008, 2009, 2010, 2011 and 2012**



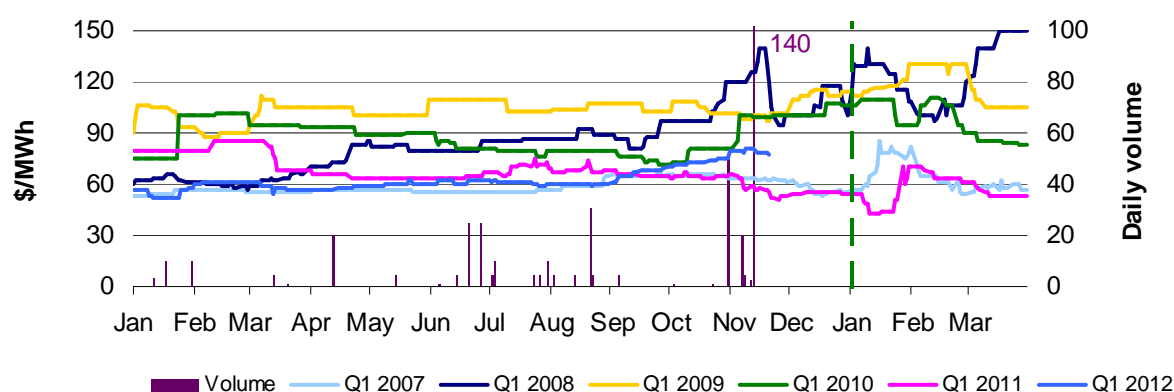
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

**Figure 8: Victoria Q1 2007, 2008, 2009, 2010, 2011 and 2012**



Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

**Figure 9: South Australia Q1 2007, 2008, 2009, 2010, 2011 and 2012**



Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

\*The daily volume scale for South Australia is smaller than for other regions to reflect the lower liquidity in the market in South Australia.

### Spot market forecasting variations

The AER is required under the National Electricity Rules to determine whether there is a significant variation between the forecast spot price published by the Australian Energy Market Operator (AEMO) and the actual spot price and, if there is a variation, state why the AER considers the significant price variation occurred. It is not unusual for there to be significant variations as demand forecasts vary and as participants react to changing market conditions. There were 63 trading intervals throughout the week where actual prices varied significantly from forecasts<sup>5</sup>. This compares to the weekly average in 2010 of 57 counts and the average in 2009 of 103. Reasons for these variances are summarised in Figure 10<sup>6</sup>.

**Figure 10: Reasons for variations between forecast and actual prices**

	Availability	Demand	Network	Combination
% of total above forecast	5	30	0	2
% of total below forecast	57	6	0	0

<sup>5</sup> A trading interval is counted as having a variation if the actual price differs significantly from the forecast price either four or 12 hours ahead.

<sup>6</sup> The table summarises (as a percentage) the number of times when the actual price differs significantly from the forecast price four or 12 hours ahead and the major reason for that variation. The reasons are classified as availability (which means that there is a change in the total quantity or price offered for generation), demand forecast inaccuracy, changes to network capability or as a combination of factors (when there is not one dominant reason). An instance where both four and 12 hour ahead forecasts differ significantly from the actual price will be counted as two variations.

## Demand and bidding patterns

The AER reviews demand, network limitations and generator bidding as part of its market monitoring to better understand the drivers behind price variations. Figure 11 shows the weekly change in total available capacity at various price levels during peak periods<sup>7</sup>. For example, in Queensland 216 MW more capacity was offered at prices under \$20/MWh this week compared to the previous week. Also included is the change in average demand during peak periods, for comparison.

**Figure 11: Changes in available generation and average demand compared to the previous week during peak periods**

MW	<\$20/MWh	Between \$20 and \$50/MWh	Total availability	Change in average demand
QLD	216	-197	547	4
NSW	-340	-526	-1083	-562
VIC	-161	-298	-296	-342
SA	-185	-116	-354	-266
TAS	-15	-55	88	-32
<b>TOTAL</b>	<b>-485</b>	<b>-1192</b>	<b>-1098</b>	<b>-1198</b>

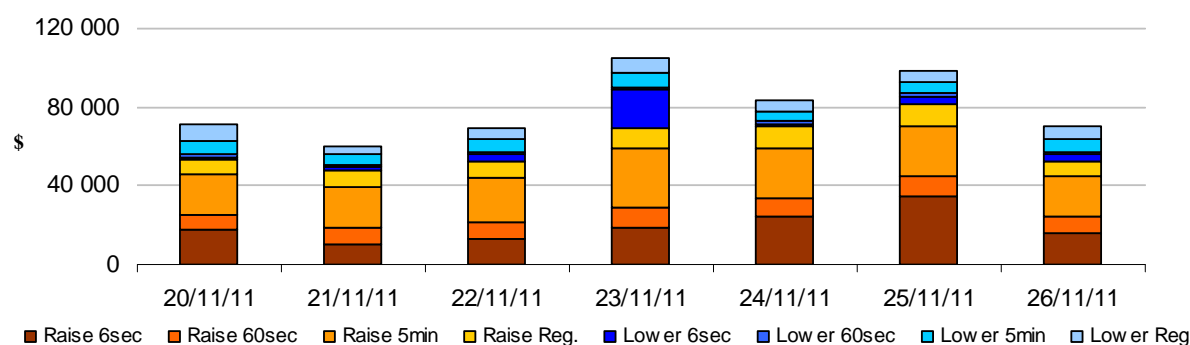
## Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was \$409 000 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$147 000 or close to three per cent of energy turnover in Tasmania.

Figure 12 shows the daily breakdown of cost for each FCAS for the NEM.

**Figure 12: Daily frequency control ancillary service cost**



<sup>7</sup> A peak period is defined as between 7 am and 10 pm on weekdays.

## Detailed Market Analysis

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**Queensland:**

There was one occasion where the spot price in Queensland was less than -\$100/MWh.

**Monday, 21 November**

<b>9:30 AM</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	-131.72	39.44	32.16
Demand (MW)	6873	7051	7001
Available capacity (MW)	10204	10218	10738

Conditions at the time saw demand up to around 180 MW less than that forecast four hours ahead and available capacity around 530 MW less than that forecast twelve hours ahead, but close to forecast four hours ahead.

At 7.50 am, effective at 8.05 am, CS Energy rebid a total of 620 MW of capacity across units one and two at its Callide B Power Station from prices between zero and \$16/MWh to -\$928/MWh. The reason given was “0749A Call\_B manage predispach constraint SL”. Callide B was being constrained off by the constraint Q>>NIL\_855\_871 (to manage overloading the Calvale to Wurdong (871) line on trip of Calvale to Stanwell (855) line).

From 8.15 am, AEMO invoked an additional constraint to manage the overloading of the Calvale transformer on the loss of the Calvale to Wurdong line. This constraint, which affects flows on the QNI interconnector and generation in central and southern Queensland, bound as soon as it was invoked, reducing the dispatch of low priced generation and forcing flows counter-price from Queensland to New South Wales. The five-minute dispatch price increased from \$30/MWh to \$173/MWh at 8.15 am, and then returned to previous levels at 8.25 am. The price increased again to \$784/MWh and then \$987/MWh by 8.40 am. At 8.55 am AEMO invoked constraints to minimise the accumulation of negative settlement residues across the QNI interconnector.

At 8.30 am, first effective at 8.40 am, CS Energy rebid 735 MW of capacity at Kogan Creek Power Station priced between \$0/MWh and \$12/MWh to -\$940/MWh. The reason given was “0828A Kpp\_1 intraconnector constraint SL”.

At 8.40 am, effective at 8.50 am, Origin Energy rebid 230 MW of capacity at its Darling Downs Power Station priced at \$22/MWh to -\$942/MWh. The reason given was “0815A Constraint management - CA\_MQS\_3DDC047D\_01 SL”.

At 8.50 am, first effective at 9 am, Millmerran Energy Trader rebid all its available capacity (428 MW) at Millmerran Power Station unit two from \$6/MWh to -\$960/MWh. The reason given was “08:49 A QNI constraint SL”.

In total, 6197 MW of capacity was offered at negative prices for the 8.55 am dispatch interval. The increased availability of low priced capacity, combined with a reduction in Queensland 5-minute demand of around 45 MW from 8.50 am, saw the dispatch price fall from around \$22/MWh at 8.50 am to the price floor at 8.55 am. The dispatch price increased to around zero at 9 am before dropping to the price floor again at 9.05 am. The dispatch prices returned to previous levels of around \$20/MWh at 9.10 am.

There was no other significant rebidding.

# Detailed NEM Price and Demand Trends

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**Table 1: Financial year to date spot market volume weighted average price**

Financial year	QLD	NSW	VIC	SA	TAS
2011-12 (\$/MWh) YTD	29	32	28	37	31
2010-11 (\$/MWh) YTD	21	28	24	28	35
Change*	42%	15%	18%	34%	-12%
2010-11 (\$/MWh)	34	43	29	42	31

**Table 2: NEM turnover**

Financial year	NEM Turnover** (\$, billion)	Energy (TWh)
2011-12 (YTD)	\$2.505	82
2010-11	\$7.445	204
2009-10	\$9.643	206

**Table 3: Recent monthly and quarterly spot market volume weighted average price and turnover**

Volume weighted average (\$/MWh)	QLD	NSW	VIC	SA	TAS	Turnover (\$, billion)
Jul-11	27	32	31	36	34	0.508
Aug-11	29	31	31	36	29	0.483
Sep-11	29	29	28	40	27	0.427
Oct-11	28	29	24	43	33	0.421
Nov-11 (MTD)	34	40	28	33	32	0.439
Q1 2011	65	90	41	83	27	3.484
Q1 2010	46	52	67	134	27	3.014
Change*	41%	74%	-38%	-38%	2%	15.57%

**Table 4: ASX energy futures contract prices at end of 28 November**

	QLD		NSW		VIC		SA	
	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Q1 2012								
Price on 21 Nov (\$/MW)	44	69	49	76	45	76	79	140
Price on 28 Nov (\$/MW)	45	70	50	78	46	77	77	140
Open interest on 28 Nov	1305	175	2245	521	2259	405	301	5
Traded in the last week (MW)	161	0	475	30	138	35	0	0
Traded since 1 Jan 11 (MW)	9978	211	11619	1185	8898	762	439	5
Settled price for Q1 11(\$/MW)	57	96	68	118	35	51	53	93

**Table 5: Changes to availability of low priced generation capacity offered to the market**

Comparison:	QLD	NSW	VIC	SA	TAS	NEM
September 11 with September 10						
MW Priced <\$20/MWh	-856	-1281	-424	-614	-345	-3520
MW Priced \$20 to \$50/MWh	-376	1085	148	175	161	1191
October 11 with October 10						
MW Priced <\$20/MWh	-782	-1751	-648	-182	-724	-4086
MW Priced \$20 to \$50/MWh	-294	1258	449	126	465	2003
November 11 with November 10 (MTD)						
MW Priced <\$20/MWh	-945	-2380	-1305	-183	-517	-5329
MW Priced \$20 to \$50/MWh	132	1340	986	161	373	2992

\*Note: These percentage changes are calculated on VWA prices prior to rounding

\*\* Estimated value