WEEKLY ELECTRICITY MARKET ANALYSIS

AUSTRALIAN ENERGY REGULATOR

4 September - 10 September 2011

Summary

Weekly average spot prices ranged from $27/MWh in Victoria and Tasmania to $34/MWh in Queensland and South Australia.

Spot market prices

Figure 1 sets out the volume weighted average (VWA) prices for the week 4 September to 10 September 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 4 - 10 September 2011	34	28	27	34	27
% change from previous week*	18	-4	-8	7	1
11/12 financial YTD	29	31	30	35	31
% change from 10/11 financial YTD **	33	-2	12	18	-34

*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 is below -$100/MWh. Longer term market trends are attached in Appendix B[1].

Financial markets

Figures 2 to 9 show futures contract[2] prices traded on the Australian Securities Exchange (ASX) as at close of trade on Monday 12 September 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[3] from the previous week.

[1] 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 -> Monitoring, reporting and enforcement -> Electricity market reports -> Long-term analysis.
[2] Futures contracts traded on the ASX are listed by d-cyphaTrade (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.
[3] Calculated on prices prior to rounding.

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

	QLD		NSW		VIC		SA	
Calendar Year 2012	41*	3%	46*	3%	42	3%	50	5%
Calendar Year 2013	51	0%	56	0%	50	0%	58	0%
Calendar Year 2014	56	0%	59	0%	60	0%	69	0%
Three year average	49	1%	54	1%	51	1%	59	1%

Source: d-cyphaTrade 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[4] from the previous week.

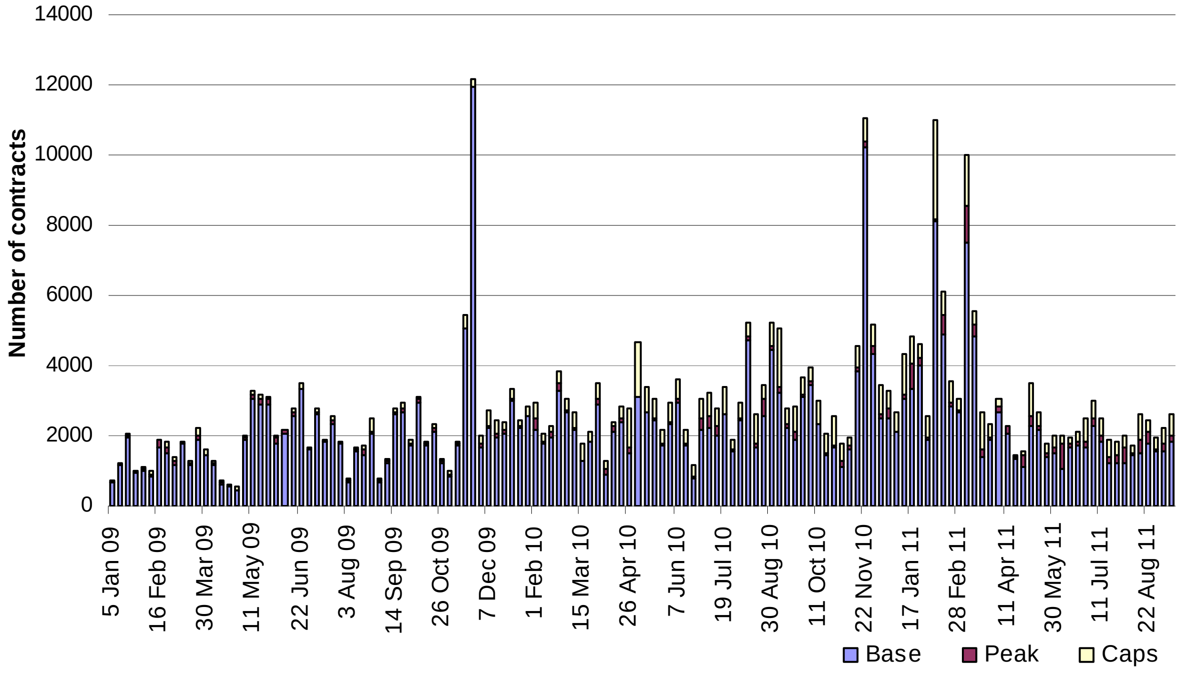
Figure 3: $300 cap contract prices ($/MWh)

	QLD		NSW		VIC		SA	
Q1 2012 (% change)	14*	2%	15*	0%	16*	8%	31*	8%
2012 (% change)	6	1%	9	-2%	6	4%	12	5%

Source: d-cyphaTrade 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

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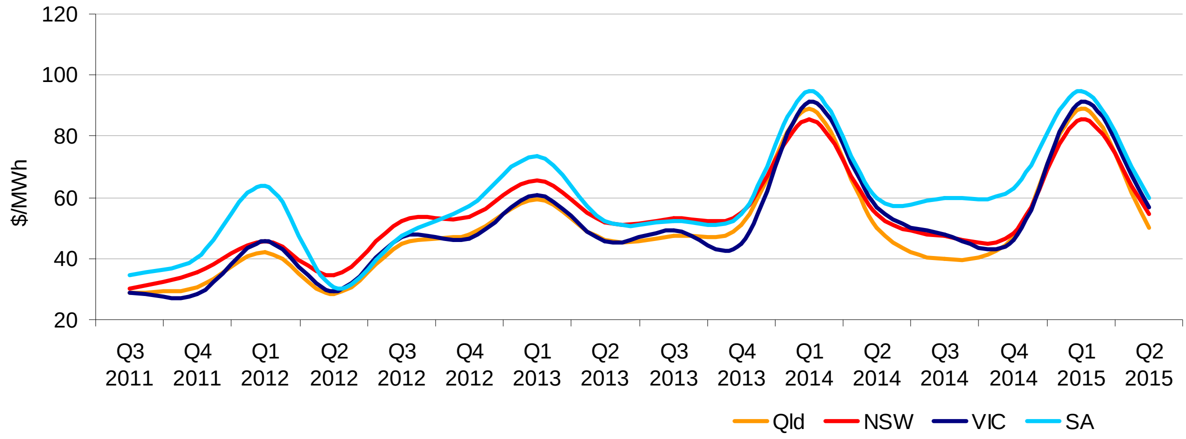
[4] Calculated on prices prior to rounding.

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

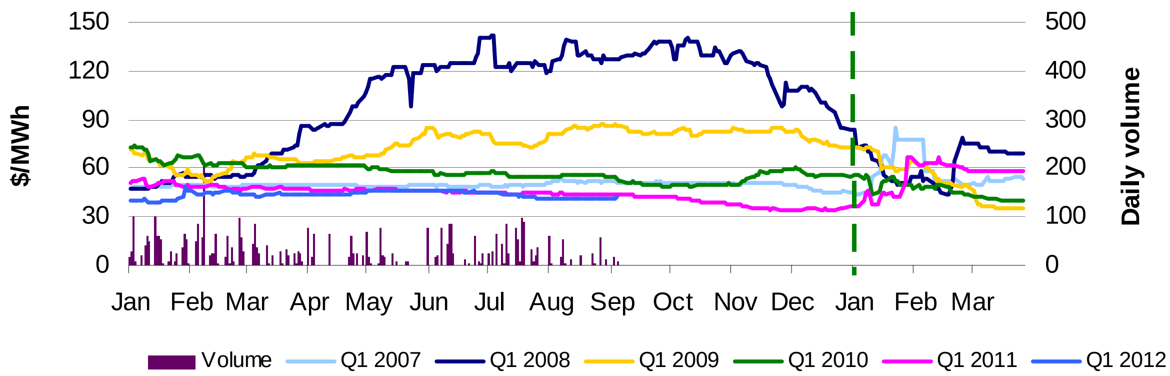
Figure 5: Quarterly base future prices Q3 2011 – Q2 2015



Source: d-cyphaTrade www.d-cyphatrade.com.au

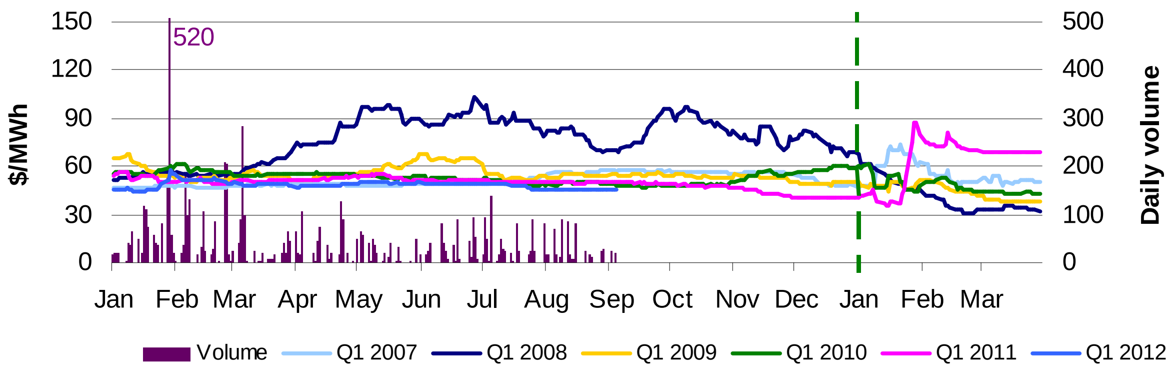
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2007, 2008, 2009, 2010, 2011 and 2012. Also shown is the daily volume of Q1 2012 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased. 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



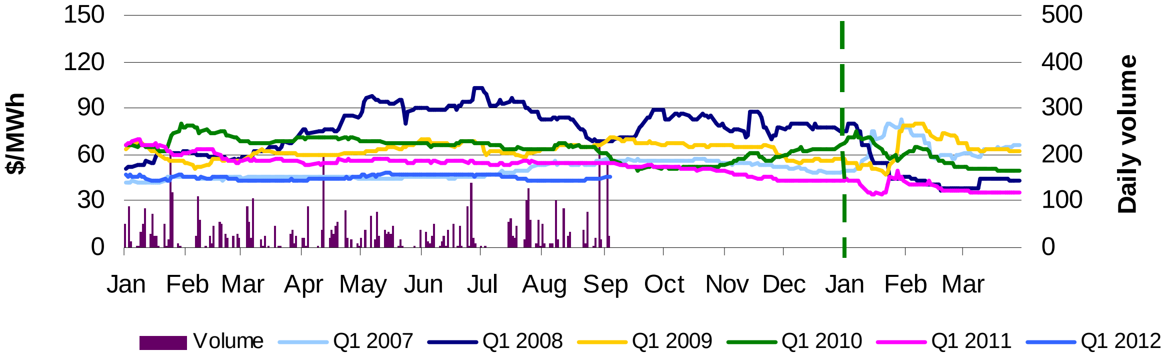
Source: d-cyphaTrade www.d-cyphatrade.com.au

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



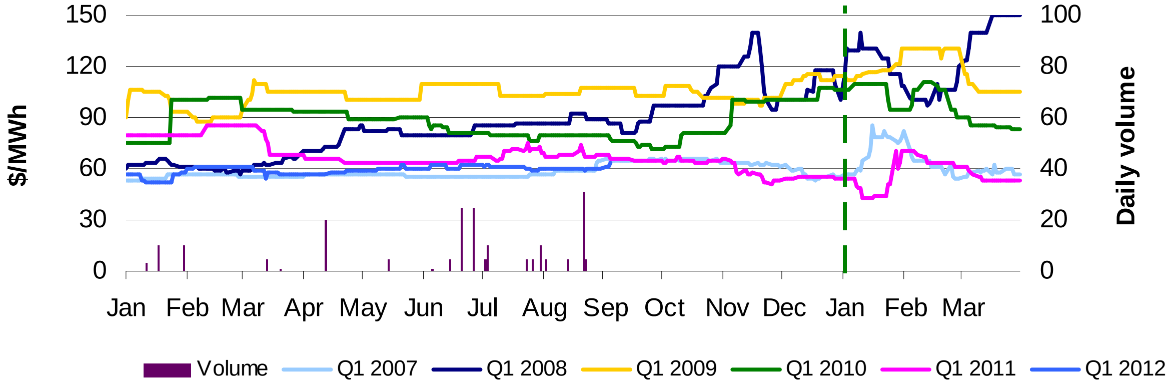
Source: d-cyphaTrade www.d-cyphatrade.com.au

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



Source: d-cyphaTrade 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

*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 75 trading intervals throughout the week where actual prices varied significantly from forecasts[5]. 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[6].

Figure 10: Reasons for variations between forecast and actual prices

	Availability	Demand	Network	Combination
% of total above forecast	0	14	2	0
% of total below forecast	66	13	0	5

[5] 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.

[6] 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[7]. For example, in Queensland 90 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	90	-103	436	36
NSW	171	-202	-63	-12
VIC	480	-169	361	-1
SA	-140	-150	-320	-26
TAS	145	-327	-3	-15
TOTAL	746	-951	411	-18

Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was $779 000 or less than one per cent of energy turnover on the mainland.

On 5 September from 10 am, constraints managing the planned outage of one of the Armidale-Dumaresq lines bound. These constraints limited flows into New South Wales across the QNI interconnector and set local lower FCAS requirements in Queensland as the loss of the remaining line would result in separation from New South Wales.

At 11 am, a targeted increase in flows from Queensland to New South Wales saw an increased requirement for local lower FCAS in Queensland. The constraint setting the lower 5-minute requirement violated and high priced FCAS offers set the price for lower 5-minute, lower regulation and lower 6-second services at $11 980/MW and to $4700/MW for lower 60-second services.

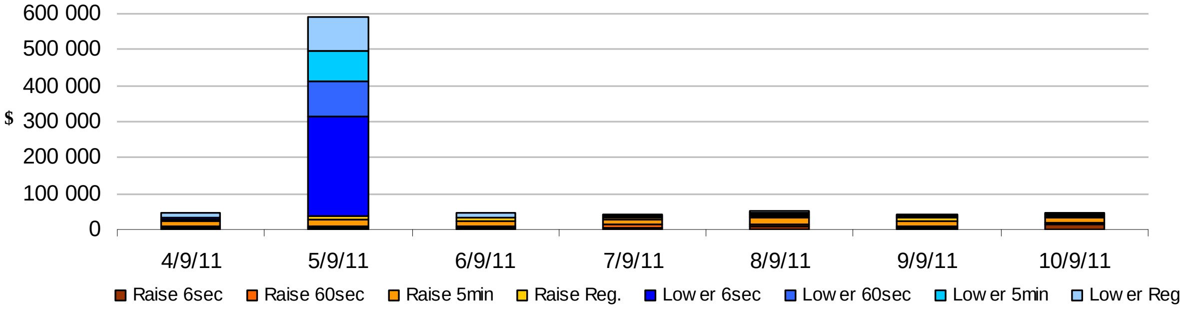
The 11.05 am dispatch interval was flagged as subject to review due to manifestly incorrect inputs (MII) as the five-minute energy price fell to $6/MWh. As a result, AEMO replaced all energy and FCAS prices with the corresponding prices for the last “correct” dispatch interval (11 am) and used these to determine the spot prices for the 11.30 am trading interval. The high lower FCAS prices were therefore effective for three dispatch intervals from 11 am to 11.10 am. The cost of all lower services in Queensland for the three dispatch intervals was around $521 000.

The total cost of FCAS in Tasmania for the week was $88 000 or around one and a half per cent of energy turnover in Tasmania.

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

[7] A peak period is defined as between 7 am and 10 pm on weekdays.

Figure 12: Daily frequency control ancillary service cost



Australian Energy Regulator
November 2011

Detailed Market Analysis

AUSTRALIAN ENERGY REGULATOR

4 September – 10 September 2011

Queensland

There was one occasion where the spot price in Queensland was greater than three times the Queensland weekly average price of $34/MWh and above $250/MWh.

Monday, 5 September

11 AM	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	2116.93	29.98	29.79
Demand (MW)	5932	6080	6141
Available capacity (MW)	10 302	10 354	10 195

Conditions at the time saw demand around 150 MW and available capacity around 50 MW lower than that forecast four hours ahead.

From 10 am, a planned outage of one line of the QNI interconnector between New South Wales and Queensland (the Armidale to Dumaresq line) saw constraints bind to manage local lower FCAS requirements in Queensland for the loss of the interconnector.

At 10.55 am, incorrect dynamic ratings were input into the constraint equations that manage the loadings on the Calvale to Stanwell and Calvale to Wurdong transmission lines causing the constraints to immediately violate. AEMO have reported that this followed a database update by Powerlink.

These constraints affect all Queensland generation and the QNI interconnector and saw a step change of around 19 000 MW in the export limit from New South Wales to Queensland. With several Queensland generators constrained at their ramp rate limits, high priced energy offers were dispatched, resulting in a five-minute price at the price cap at 10.55 am.

In response to the high price, Queensland generators rebid around 1875 MW of capacity to prices at or below $0/MWh over a number of rebids, first effective between 11 am and 11.10 am.

An apparent demand side response of around 150 MW saw Queensland demand fall from around 5982 MW at 10.55 am to around 5830 MW at 11 am. Combined with rebidding into lower prices, this saw the five-minute price fall to around $92/MWh at 11 am.

Under the Electricity Rules, there is a process to allow energy and ancillary service price outcomes to be automatically flagged as subject to review if it is detected that there are manifestly incorrect inputs (MII) to the dispatch algorithm. If this occurs, AEMO must determine within 30 minutes whether to replace the price with the price for the previous correct dispatch interval.

The trigger parameters are specified for each region and they consist of a change in dispatch price and a change in interconnector target flows into or out from the relevant region. The change in interconnector flow for the 10.55 am dispatch interval did not reach the trigger threshold, therefore even though there were incorrect inputs that caused a price spike, the original price was not reviewed nor replaced. Although the QNI export limit changed by around 19 000 MW, a change in the limit is not a trigger. A reduction in the target flow for exports from Queensland to New South Wales of around 100 MW combined with a fall in the dispatch price of around $85/MWh saw the trigger parameters met for the 11.05 am dispatch interval. This resulted in all dispatch and ancillary service prices for the 11.05 am and 11.10 am dispatch intervals being replaced with those from the last correct dispatch interval of 11 am.

Detailed NEM Price and Demand Trends

for Weekly Market Analysis
4 - 10 September 2011

AUSTRALIAN ENERGY REGULATOR

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

Financial year	QLD	NSW	VIC	SA	TAS
2011-12 ($/MWh) YTD	29	31	30	35	31
2010-11 ($/MWh) YTD	22	31	27	30	47
Change*	33%	-2%	12%	18%	-34%
2010-11 ($/MWh)	34	43	29	42	31

Table 2: NEM turnover

Financial year	NEM Turnover** ($, billion)	Energy (TWh)
2011-12 (YTD)	$1.245	41
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)
May-11	28	30	35	35	39	0.499
Jun-11	26	28	29	33	30	0.447
Jul-11	27	32	31	36	34	0.508
Aug-11	29	31	31	36	29	0.483
Sep-11 (MTD)	32	28	26	32	27	0.141
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 12 September

	QLD		NSW		VIC		SA	
Q1 2012	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Price on 05 Sep ($/MW)	41	66	45	72	44	72	60	106
Price on 12 Sep ($/MW)	42	66	46	72	46	75	64	106
Open interest on 12 Sep	1390	98	1808	420	1910	246	170	5
Traded in the last week (MW)	38	0	76	5	442	20	0	0
Traded since 1 Jan 11 (MW)	4651	126	6953	708	5021	387	215	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
July 11 with July 10						
MW Priced <$20/MWh	-826	-665	-448	99	121	-1718
MW Priced $20 to $50/MWh	202	753	-162	29	-282	539
August 11 with August 10						
MW Priced <$20/MWh	-1212	-877	10	-152	-198	-2429
MW Priced $20 to $50/MWh	96	656	-241	57	-43	524
September 11 with September 10 (MTD)						
MW Priced <$20/MWh	-952	-1026	92	-450	-174	-2510
MW Priced $20 to $50/MWh	-302	771	-85	191	-213	362

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